ACCESSION NR: AP4043453 S/0131/64/000/008/0380/0382

AUTHOR: Gaodu, A. N., Kaynarskiy, I. S.

TITLE: Highly refractory, light weight materials for zirconium dioxide and zircon

SOURCE: Ogneupory*, no. 8, 1964, 380-382

TOPIC TAGS: refractory, light weight refractory, zircon, zirconium dioxide, zirconium silicate, ceramic

ABSTRACT: A method of preparing ceramic materials from porous alumina, developed by the authors and described in an earlier paper (Ogneupory*, 1963, No. 5), was applied to zirconium dioxide and zircon so that these could be used as components in the process. Zirconium dioxide, either without pretreatment or calcined at 1750C, was ground for 1.5 hrs. in a vibromill to a powder that passed through a 10000 mesh/cm^2 sieve. To prepare zirconium ceramics by this process, a mixture containing 86% zirconium dioxide (or zirxon, sifted through a 900 mesh/cm^2 sieve), 8% gypsum, 6% lime and 0.5% aluminum powder was used as the base. After addition of sulfite-alcohol distillery residues to a proportion of 0.25% by weight and thorough mixing, the mass was poured into metallic molds for raising and solidification. The zirconium oxide and zircon products prepared by this

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ACCESSION NR: AP4043453

process were heated at 1750 and 1580C, respectively, for 6 hrs. and showed a volume shrinkage of 54%. Tests showed that the ceramic quality of the materials is high and the coefficient of thermal conductivity is low. The results of petrographic and x-ray structural analysis are discussed briefly. "The petrographic studies were carried out by Z. D. Zhukova." Orig. art. has: 2 tables and 1 figure.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrainian Scientific Research Institute of Refractory Materials)

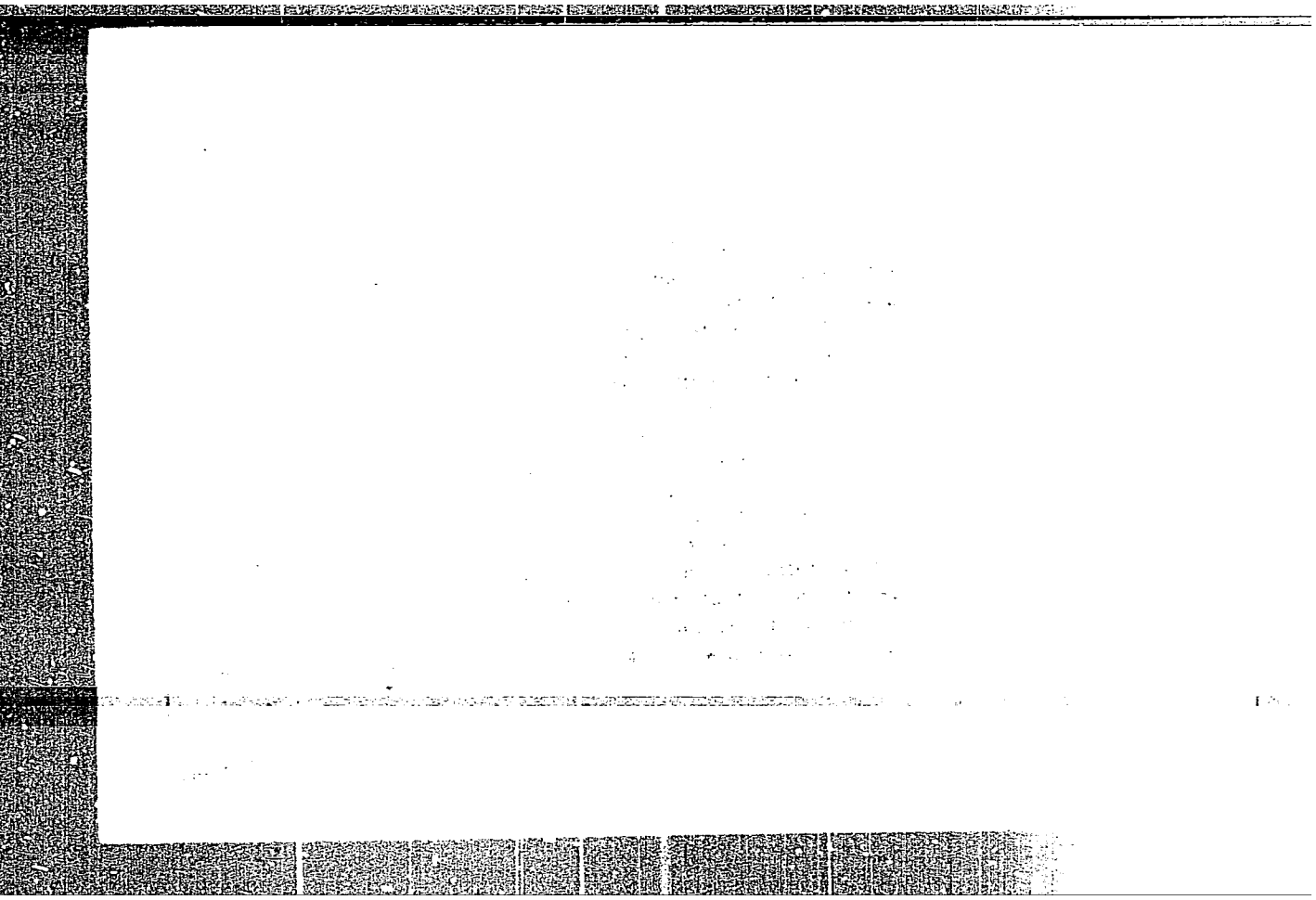
SUBMITTED: 00 ENCL: 00

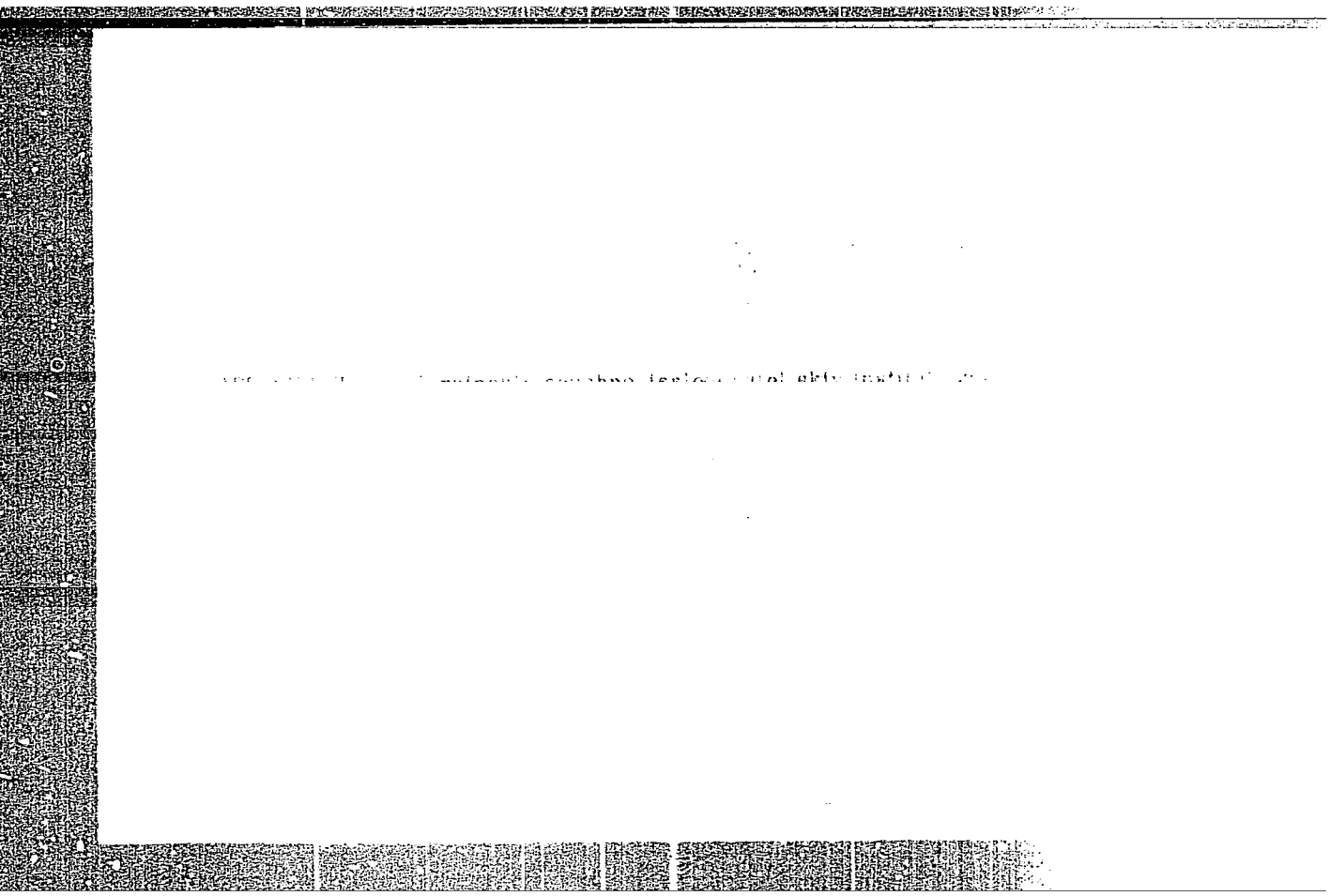
SUB CODE: MT NO REF SOV: 004 OTHER: 000

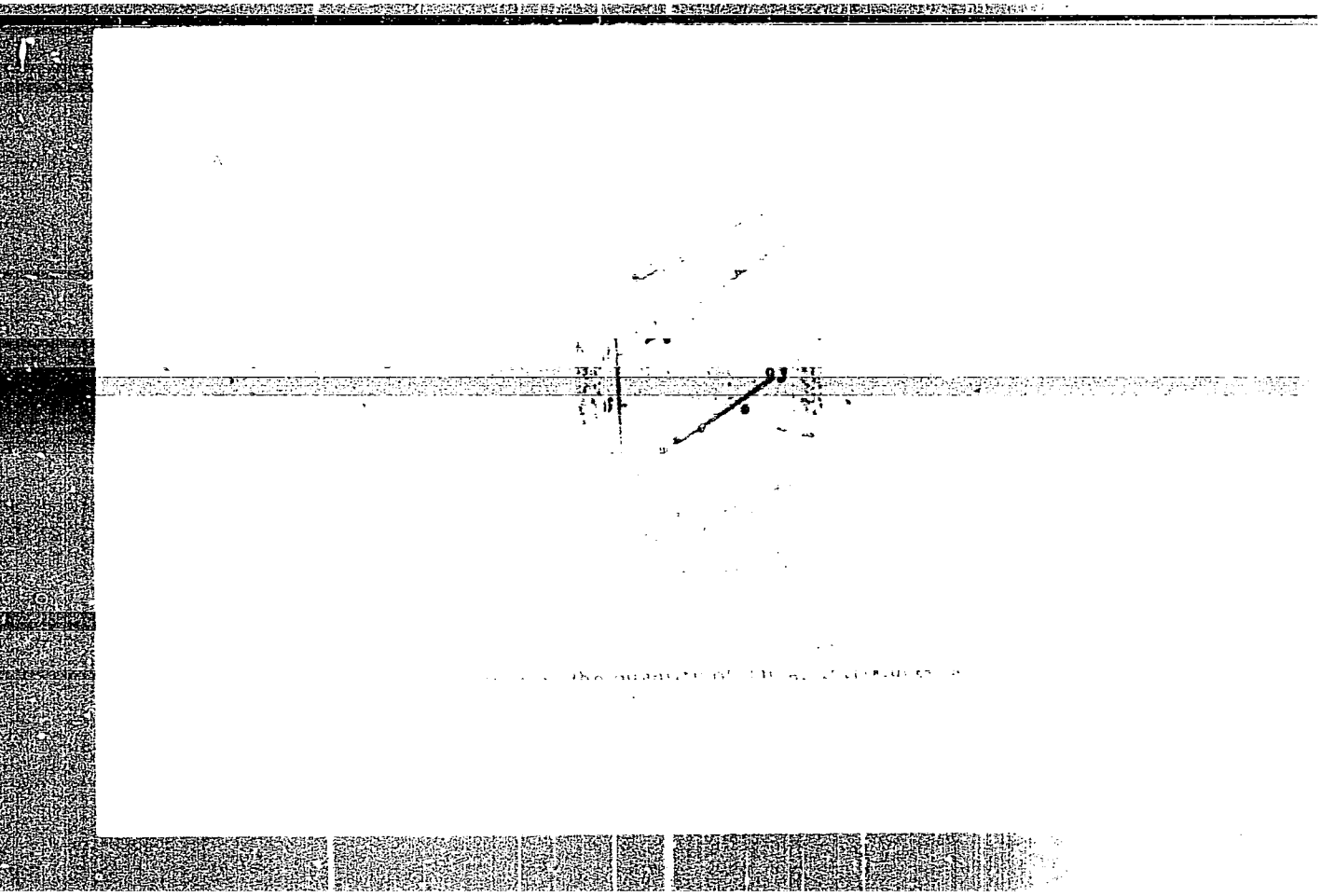
Card 2/2

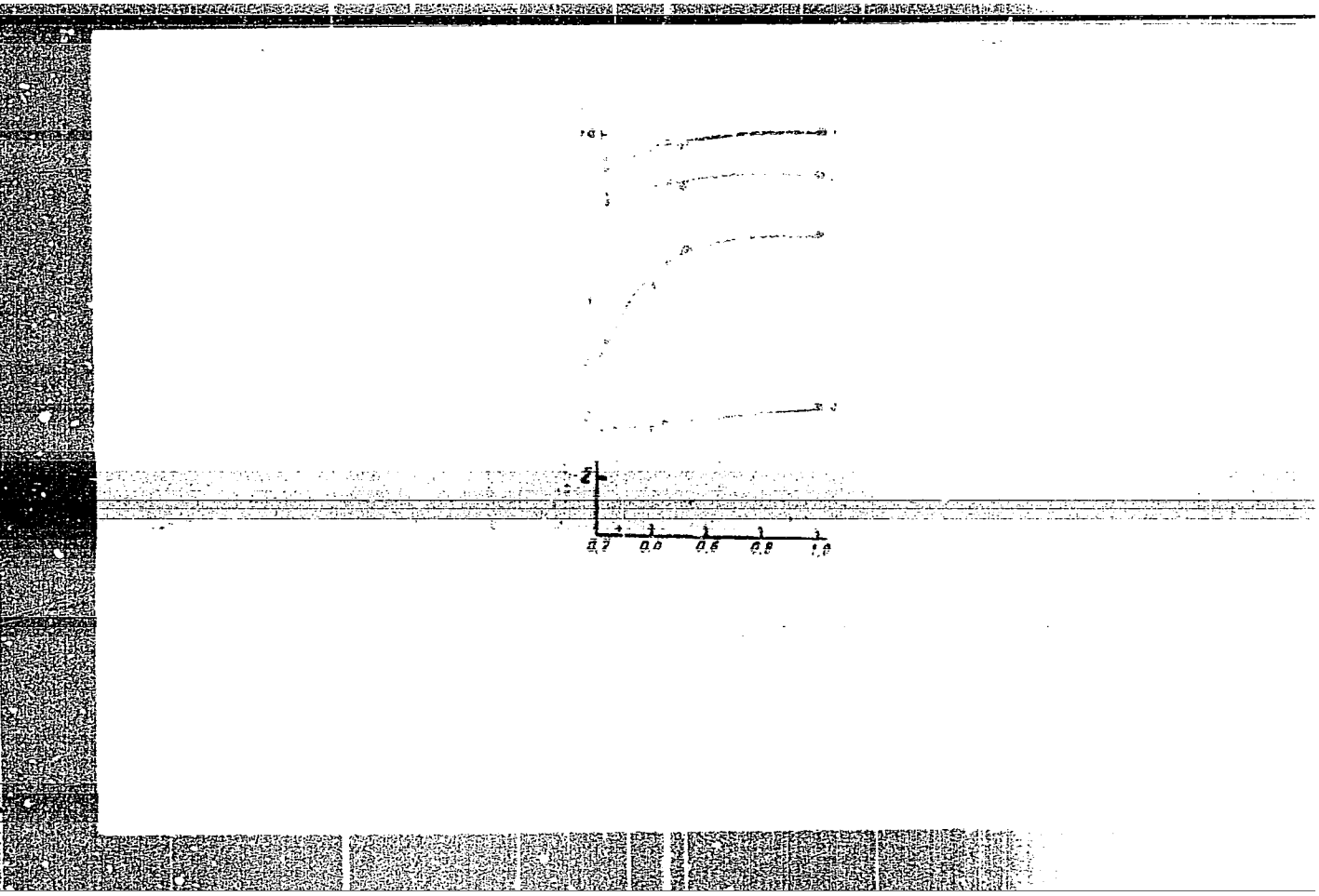
ABSTRACT: The sintering of crystalline powders in the absence of a liquid phase is

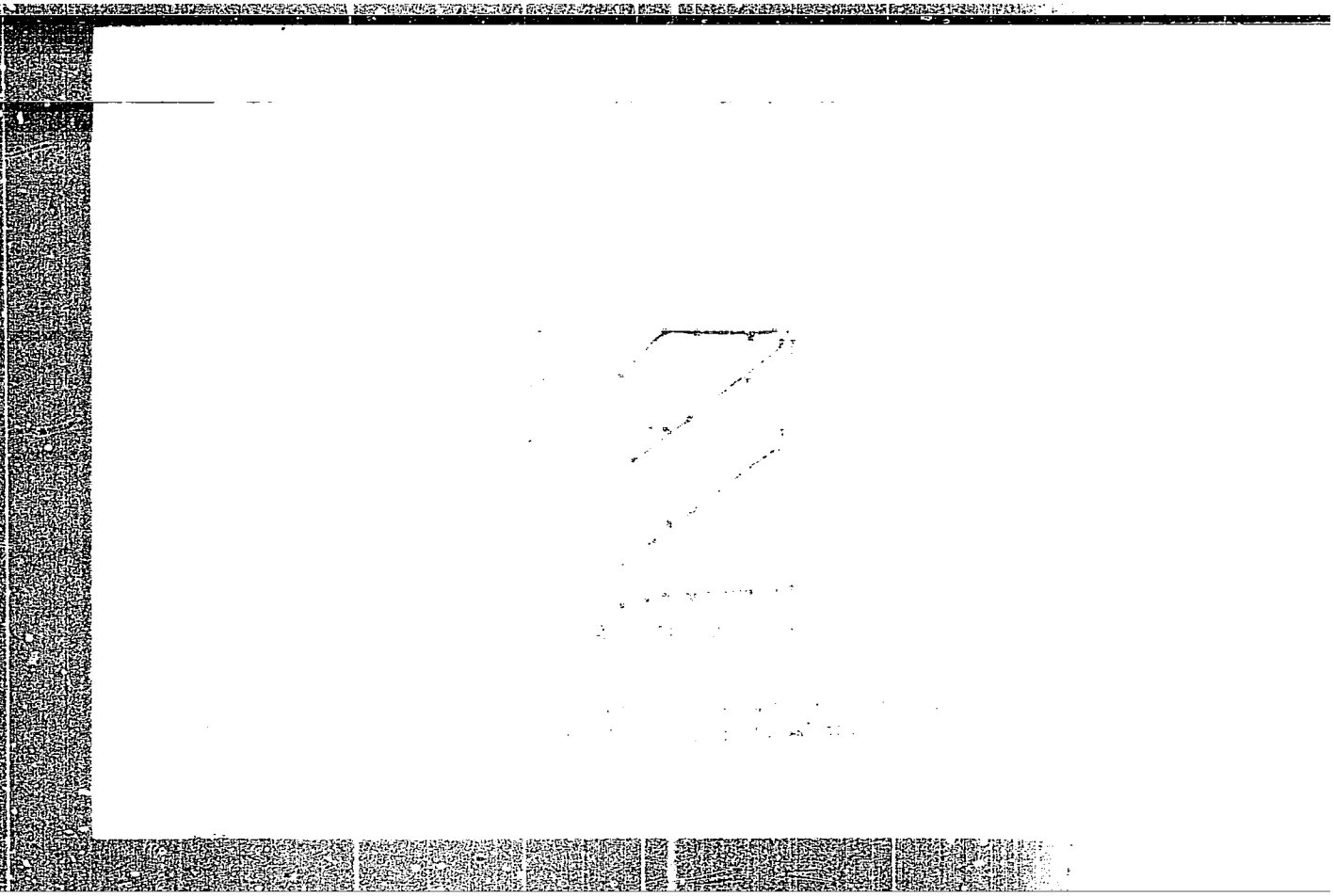
increased in 1000 stages.

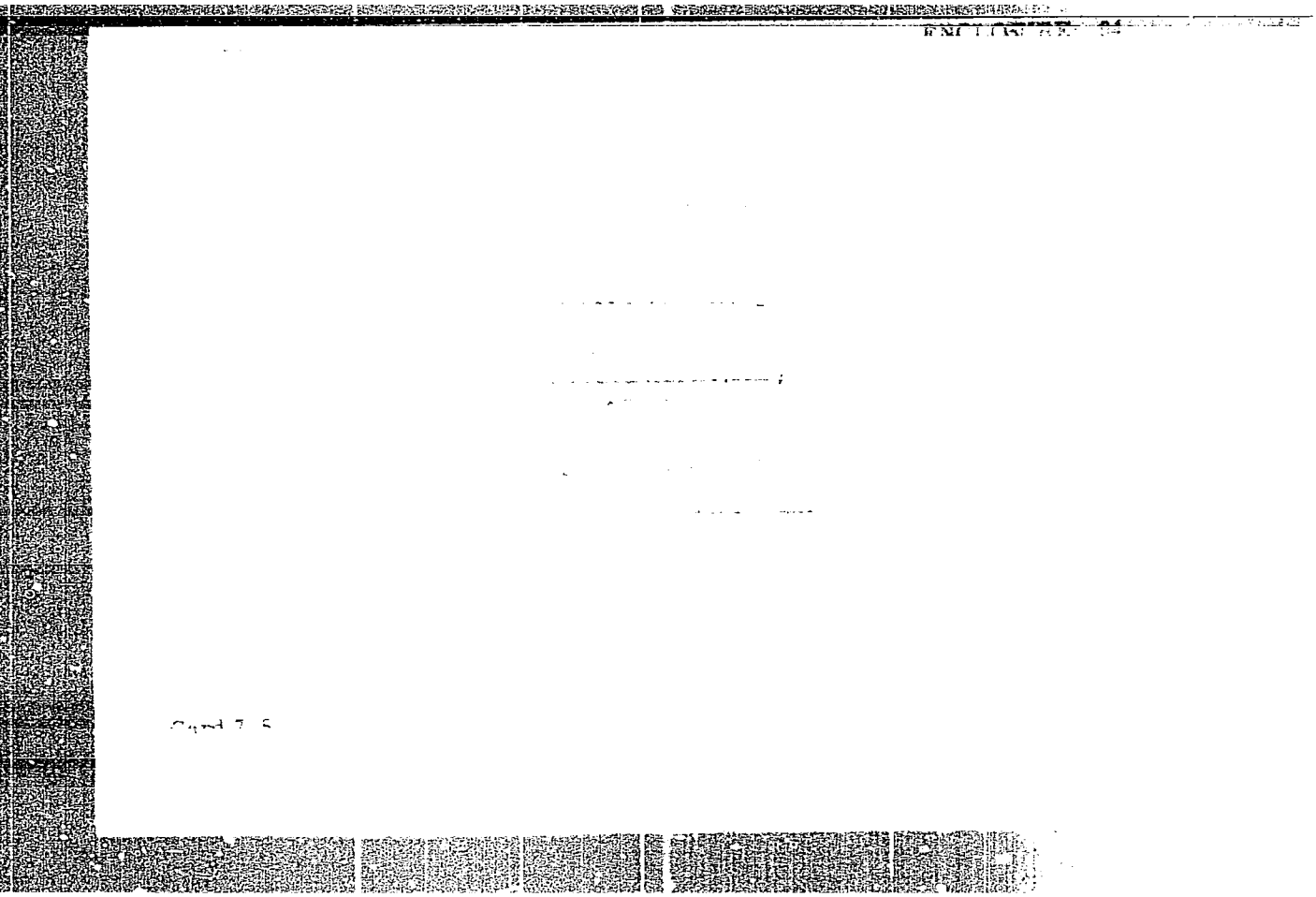


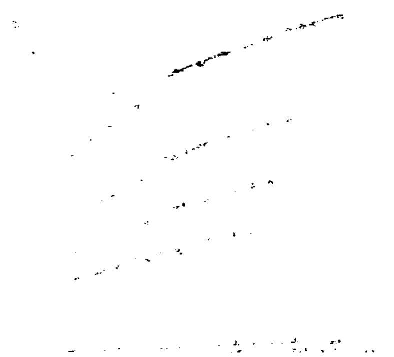




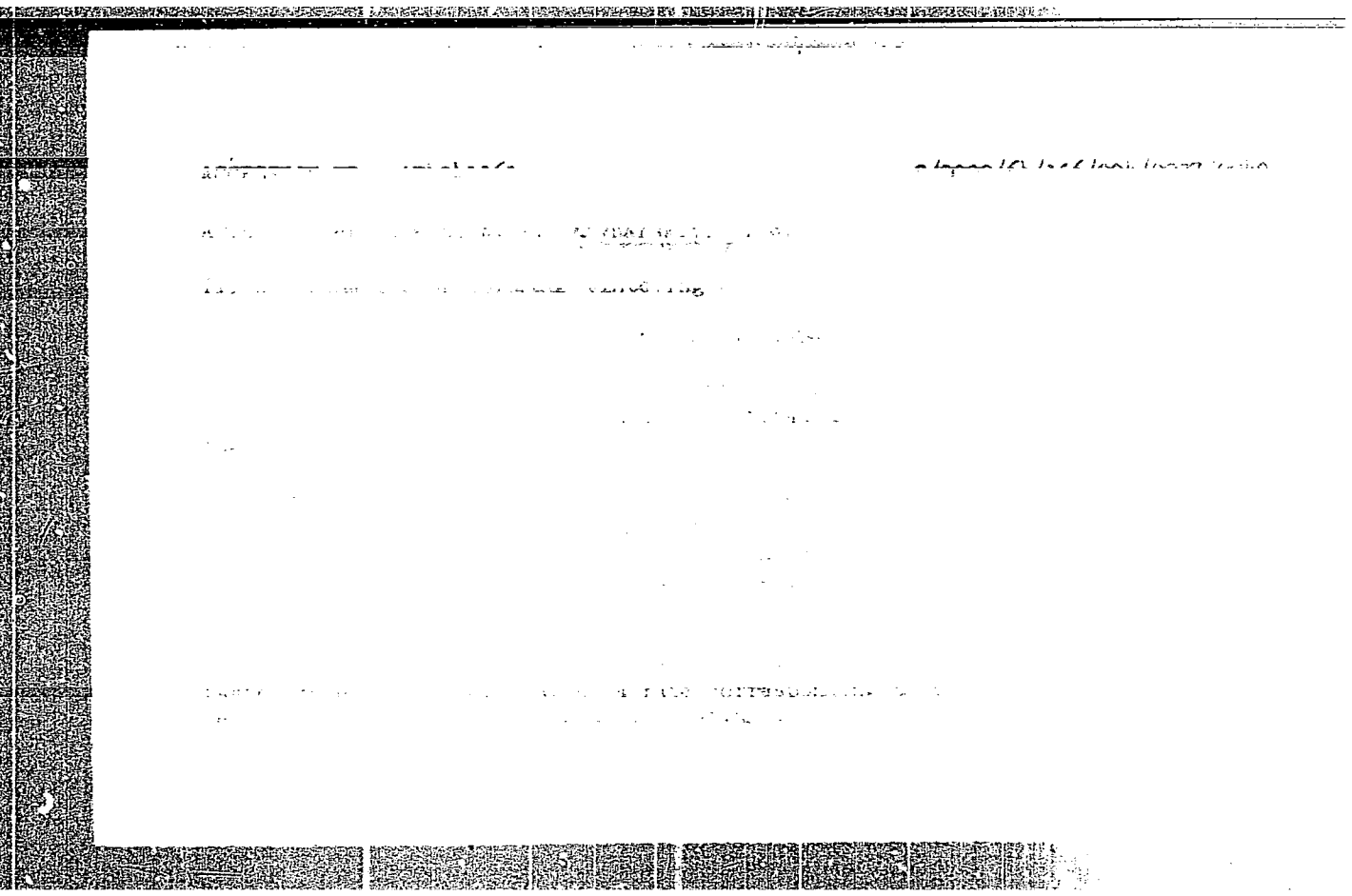


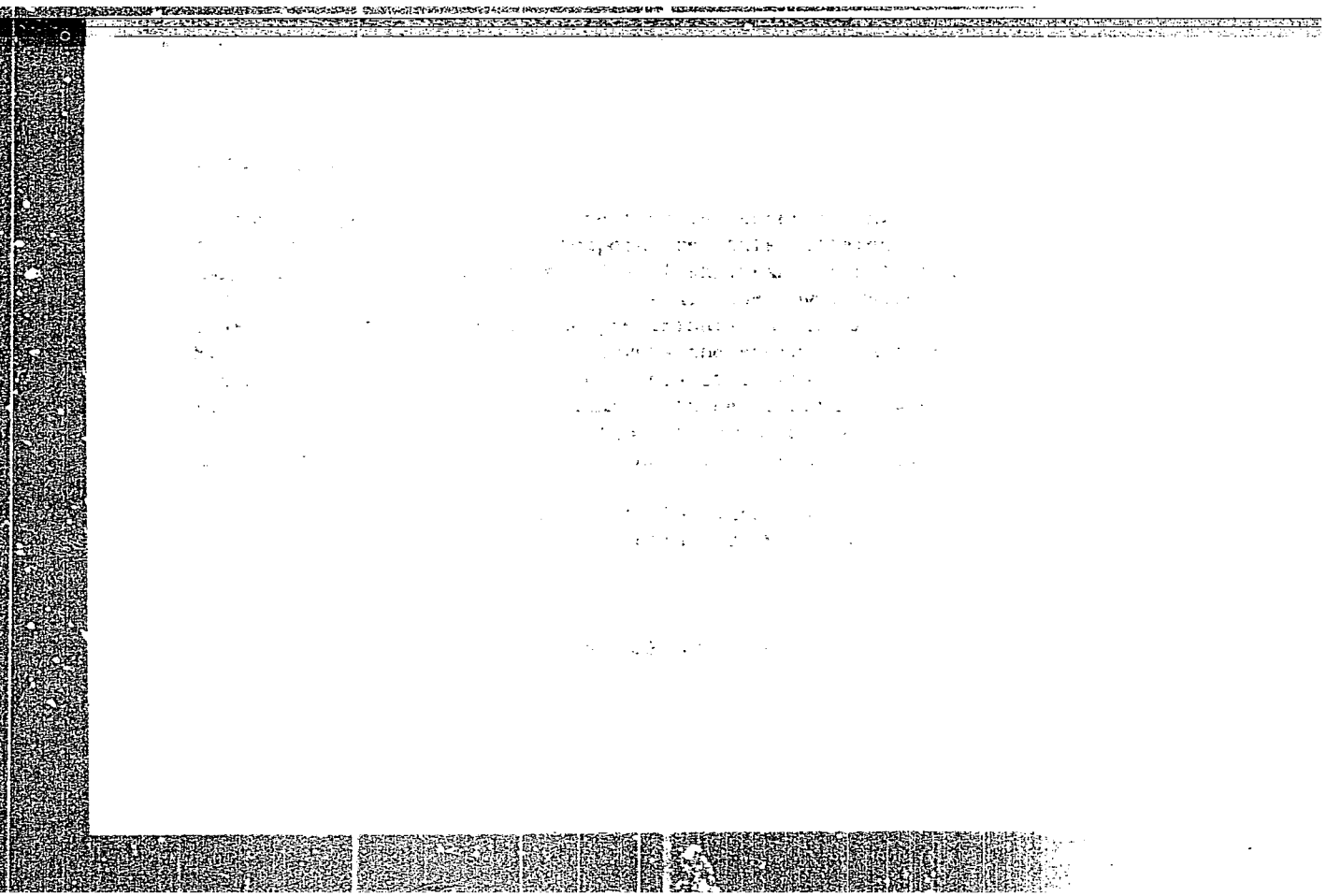


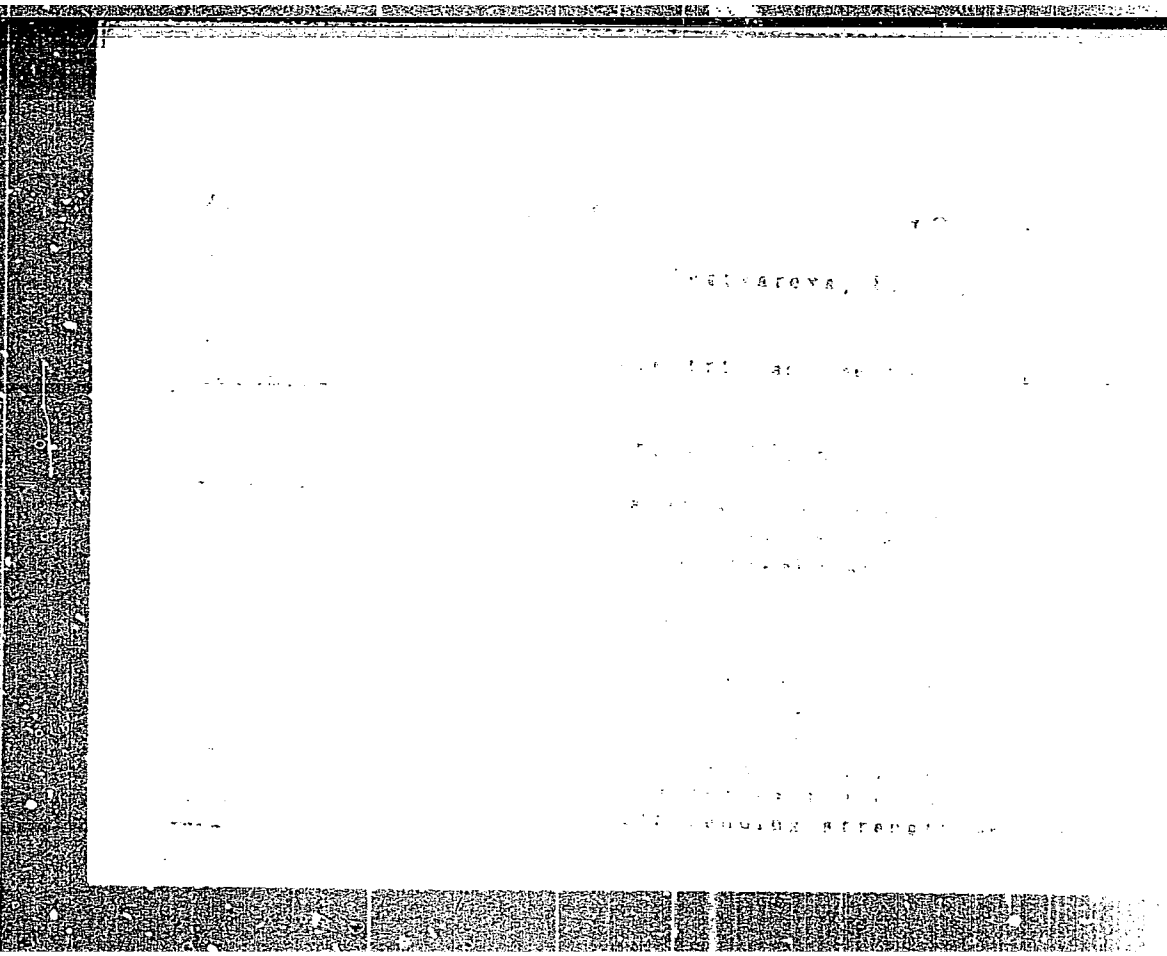




heating of samples by stages; sintering at 1 - 1000C, 2 - [illegible]







without additives. Magnesium-containing additives

minimum of 0.0001—0.0002 mm². An increase in the average crystal size to 0.001 mm² leads to a sharp drop in the breakdown

L 2128-65 EPA(s)-2/EWT(m)/EPF(n)-2/EPA(w)-2/T/EWP(q)/EWP(b) Pab-24/
Pt-10/Pu-4 WH

ACCESSION NR: AP4042205 S/0020/64/157/002/0331/0333

AUTHORS: Orlova, I.G.; Kaynarskiy, I.S.;

TITLE: Kinetics of deformation of corundum specimens upon heating

SOURCE: AN SSSR. Doklady*, v. 157, no. 2, 1964, 331-333

TOPIC TAGS: deformation kinetics, corundum, vacancy diffusion

ABSTRACT: The authors have experimentally investigated the deformation of corundum which did not undergo prior annealing, under the action of its own weight, at different temperatures of heating. The camber of small prisms of corundum 5x5 mm at the distance between the supports of 60 mm was measured. The stress caused by the weight amounted to about 10 gm/mm^2. The deformation vs. time curves were found to be of two types. One type showed saturation, the other did not. The deformation depends on the kind and on the amount of admixtures. The deformation under its own weight was found to follow the same rules which correspond to the vacancy diffusion mechanism of metal deformation and of sintering of metal powders. Orig. art. has: 4 figures, 1 table.

Card 1/2

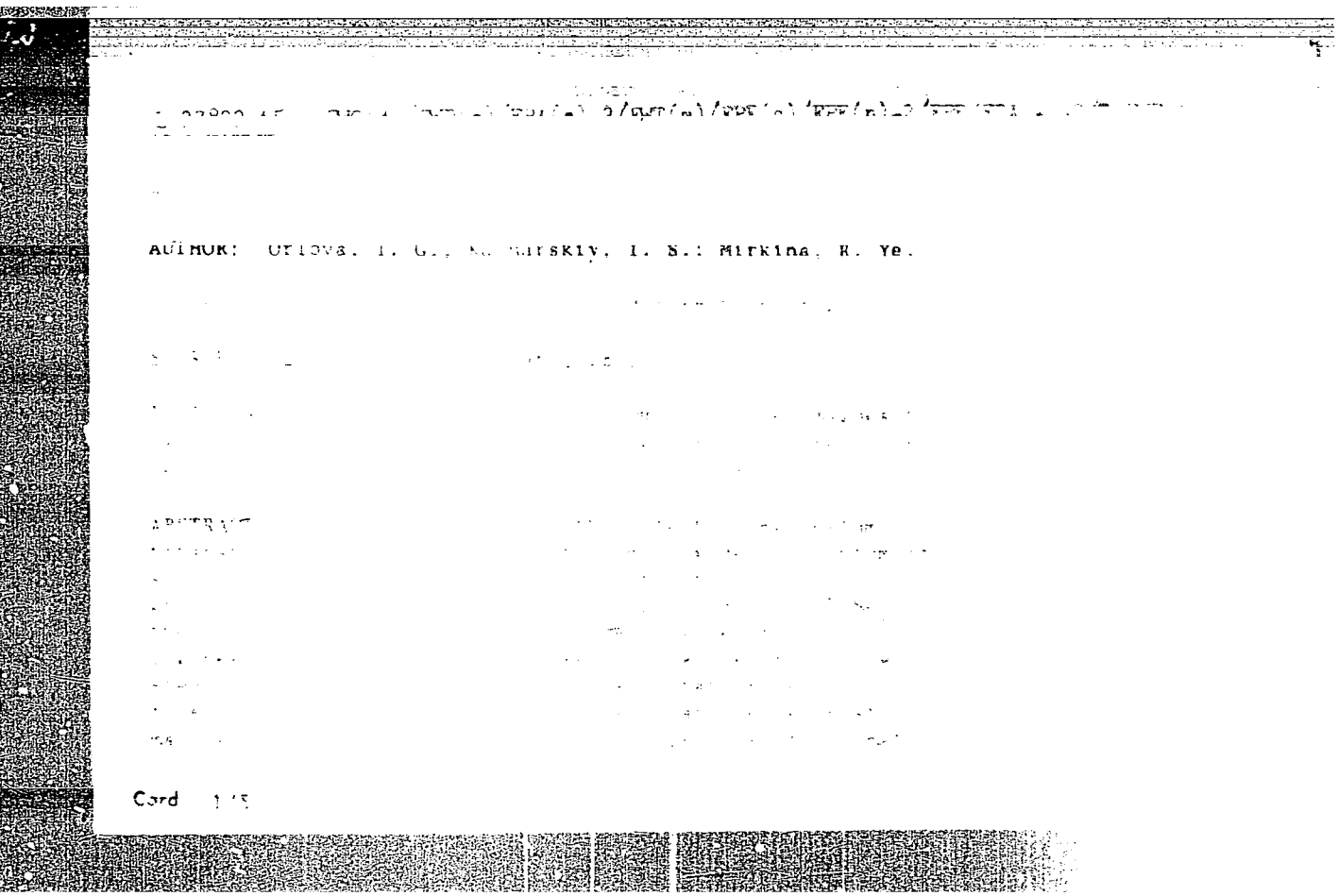
L 2128-65
ACCESSION NR: AP4042205

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrain Scientific Research Institute of Refractory Materials)

SUBMITTED: 25Jan64 ENCL: 00

SUB CODE: MM, SS NR REF SOV: 003 OTHER: 001

Card 2/2

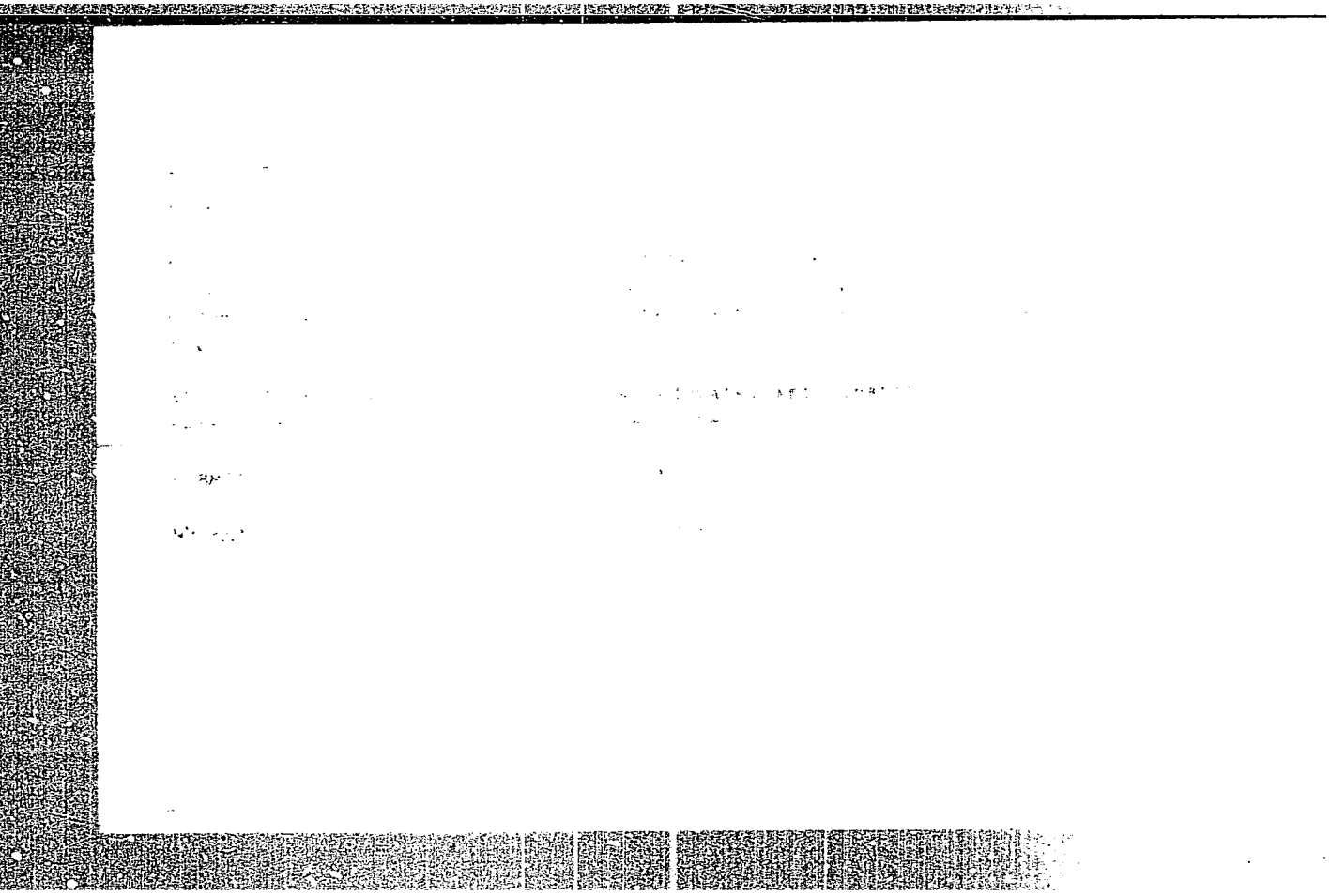


AUTHOR: [illegible]

Card [illegible]

ACCESSION NR

these additives were introduced in small quantities Unlike



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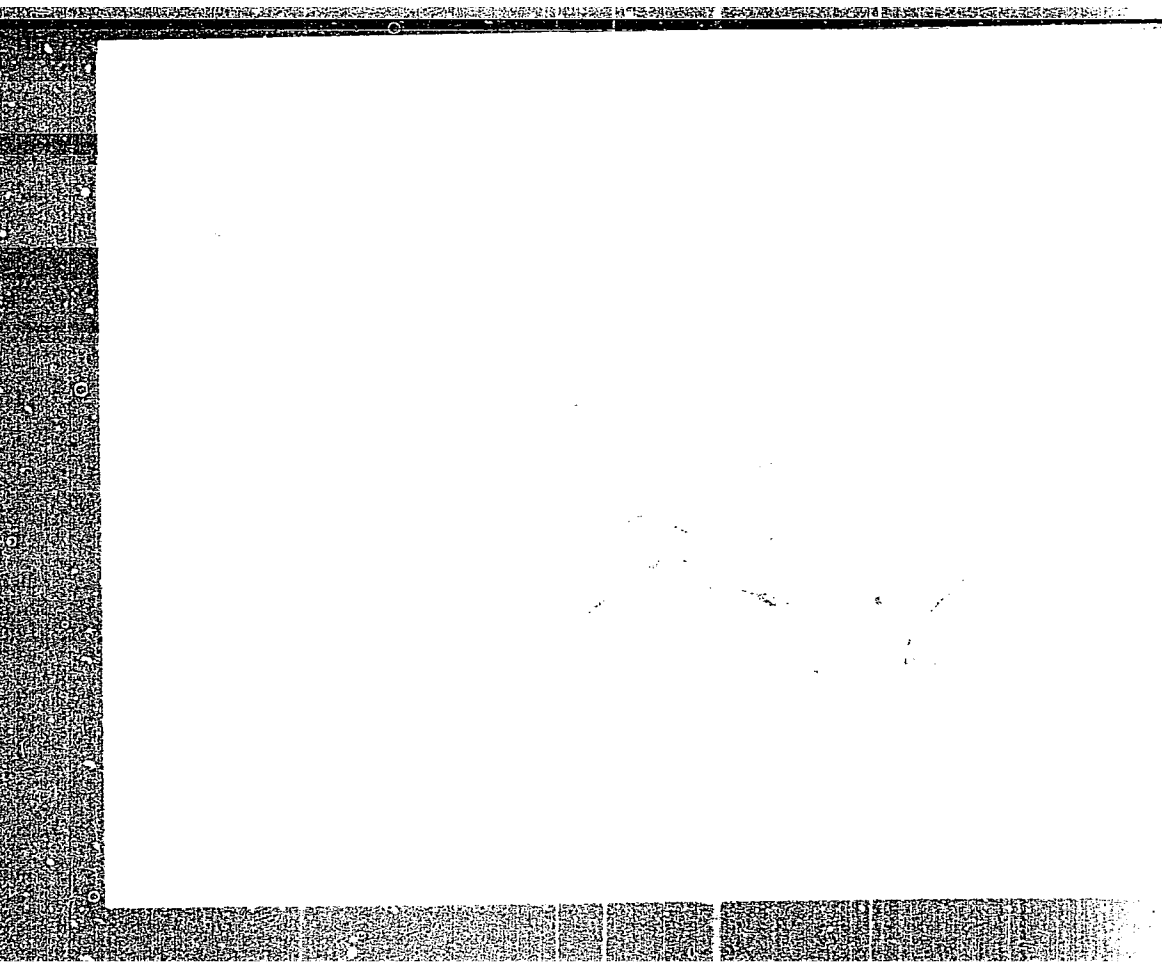

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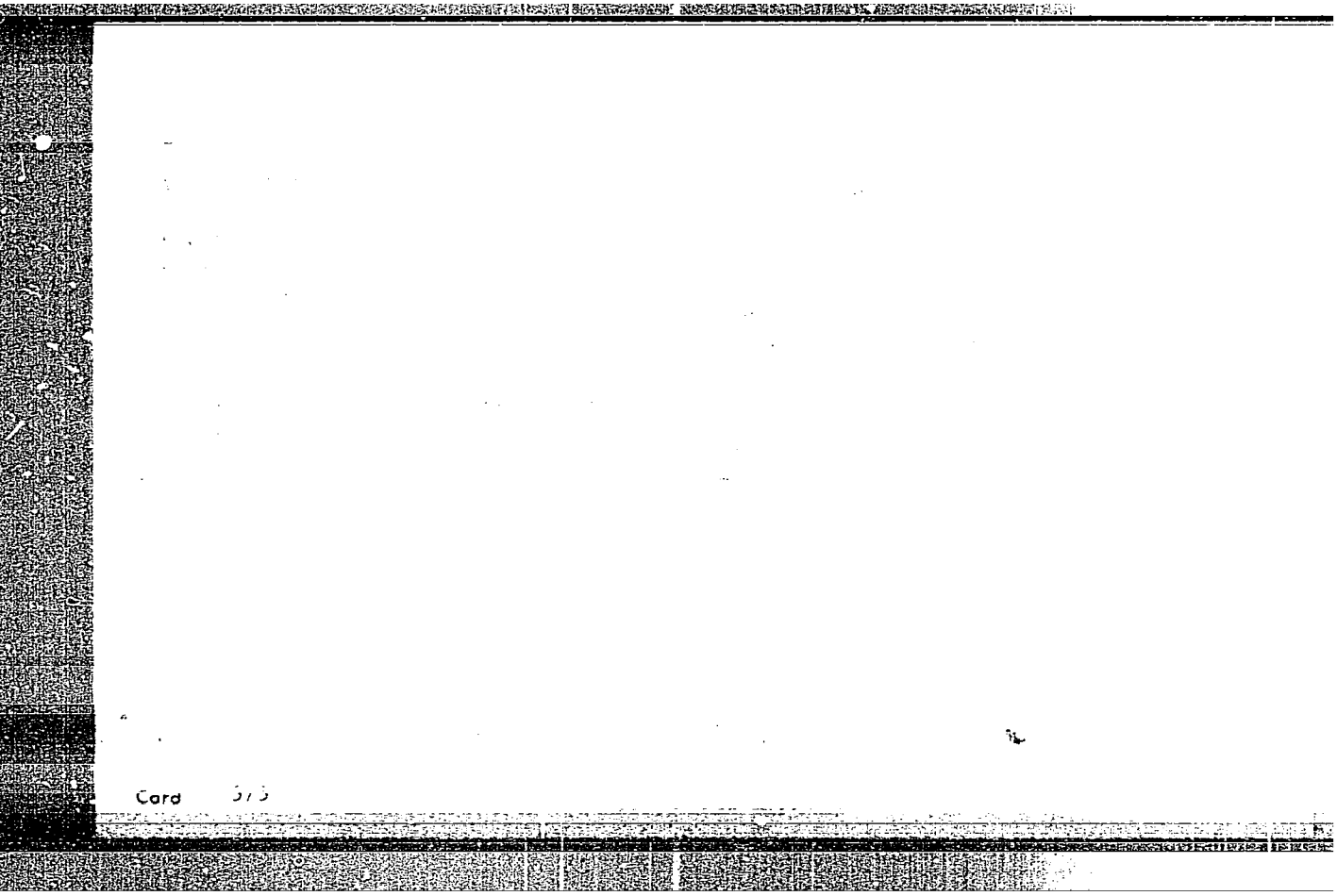
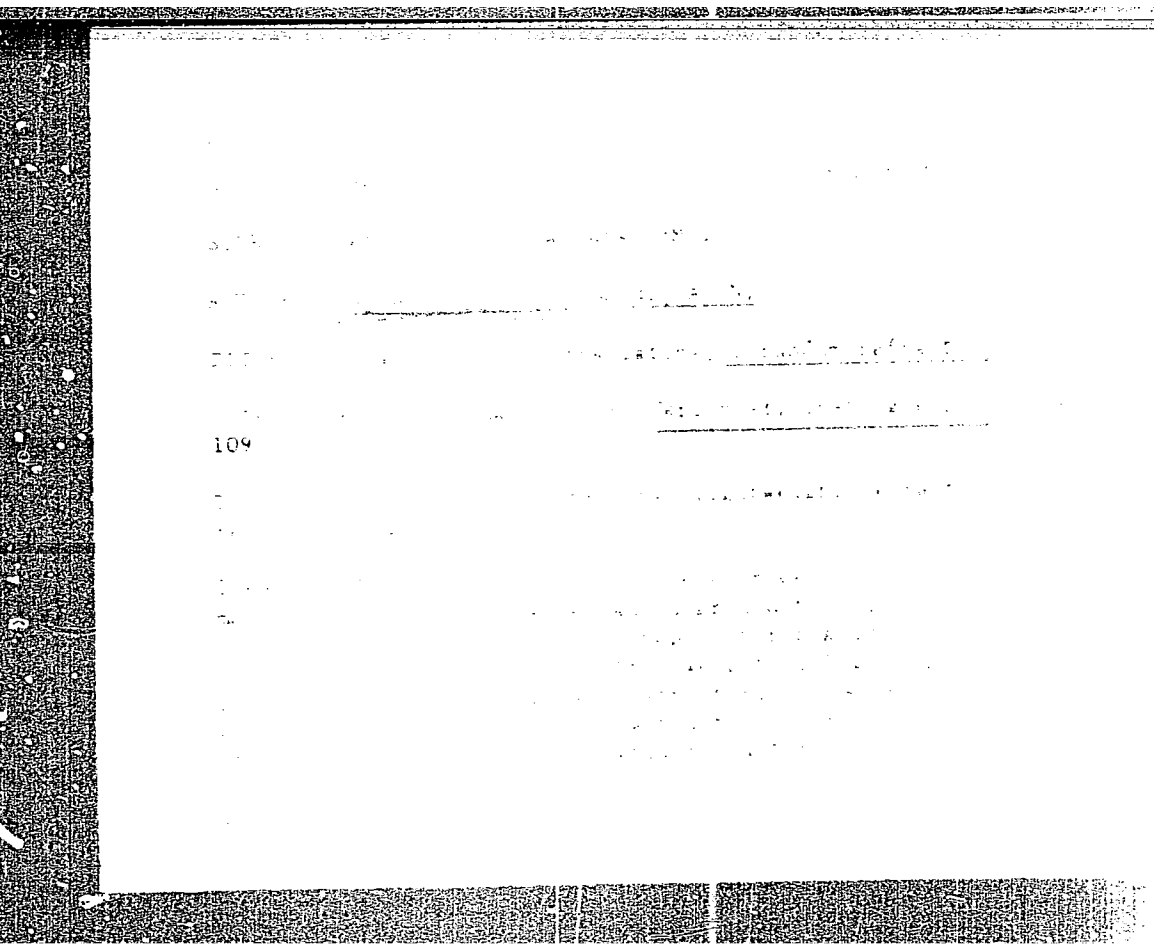


APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220014-2"

SOURCE: Ogneupory, no. 10, 1984, 455-460

by low sintering temperatures. Shrinkage anisotropy rises markedly in

ACCESSION NR AP4047019



ENCL: 50

Card 2/2 50

GAZOV, A.A.; KAYNARSKIY, I.S.

Investigating the kinetics of the swelling of alumina slip for the manufacture of lightweight corundum refractories. Ogneupory 29 no.6: 270-275 '64. (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ogneuporov.

DEGTYAREVA, E.V.; KAYNARSKIY, I.S.; TOTSENKO, S.P.

Sintering of corundum with additives. Ogneupory 29 no.9:400-411 '64.
(MIRA 17:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKY, I.S.; GAODU, A.N.

Measuring the kinetics of the expansion of a mass during the molding of expanded ceramic products. Stroi.mat. 10 no.8:13 Ag '64.
(MIRA 17:12)

KAYNARSKIY, I.S.; GAGDU, A.N.

Evaluating the heat-resistance of lightweight refractories by the acceptable speed of their heating and cooling. Ogneupory 29 no.7:318-321 '64. (MIRA 18:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; ALEKSEYENKO, L.S.

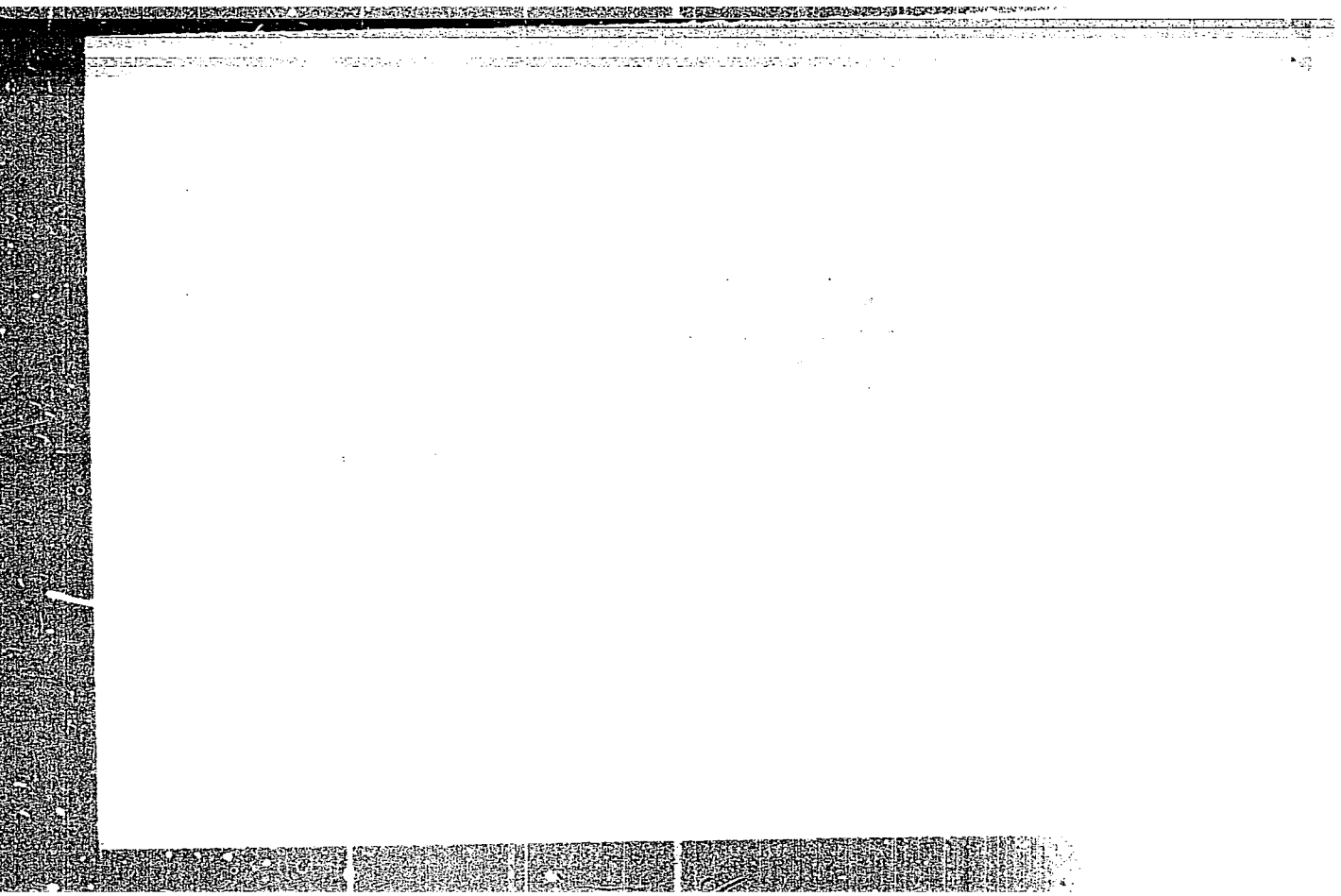
Shrinkage anisotropy in the sintering of corundum. Ogneupory 29 no.10:455-460 '64. (MIRA 18:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

oxide; talc) were prepared by slip casting in gypsum plaster molds and [illegible]

ceramics increases upon addition of magnesium-containing [illegible]

reacting with Al_2O_3 during the firing, form a magnesia spinel. However, the strength of the ceramics decreases with rising content of the silica introduced by the modifier. It was shown that the marked decrease in strength observed in



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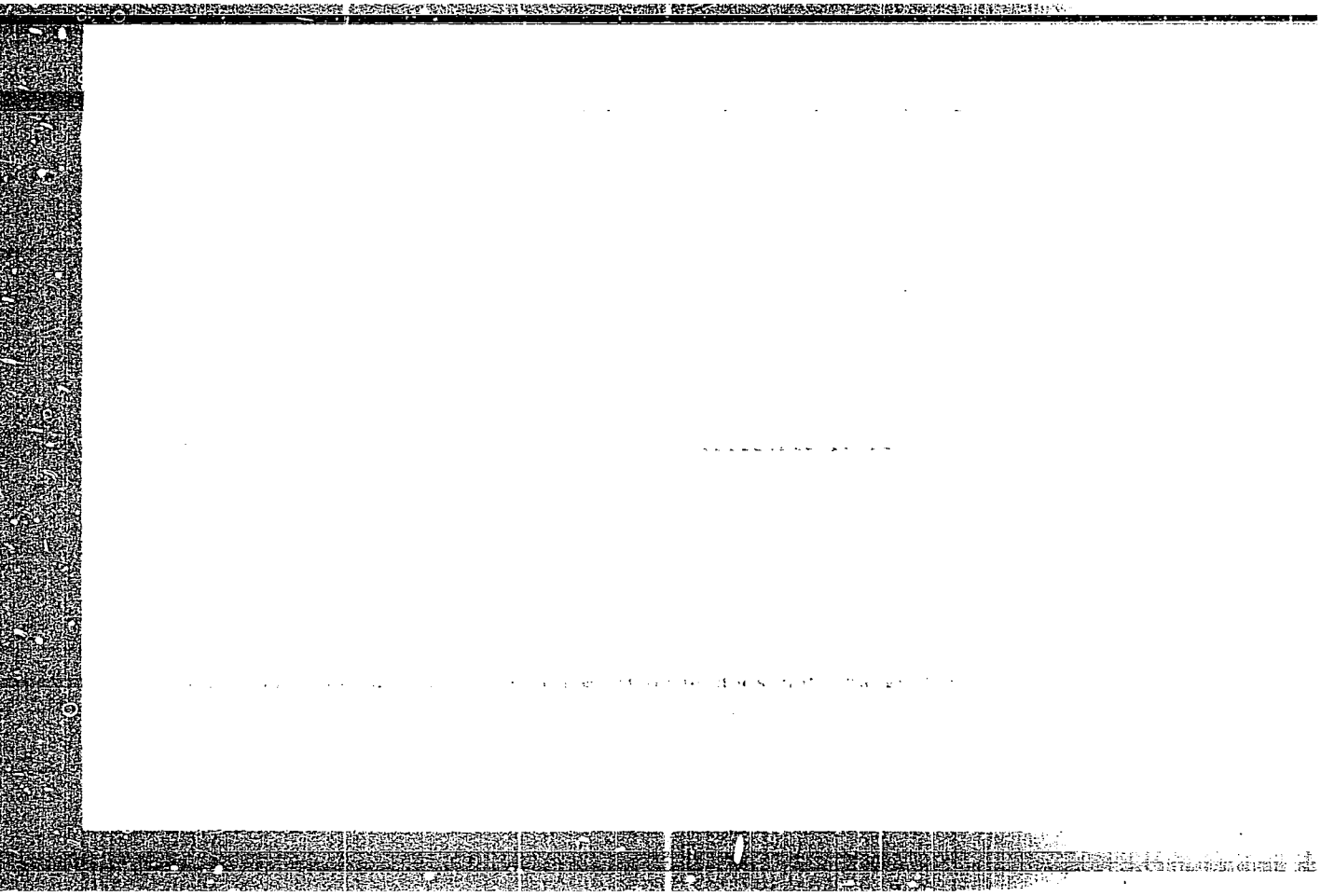

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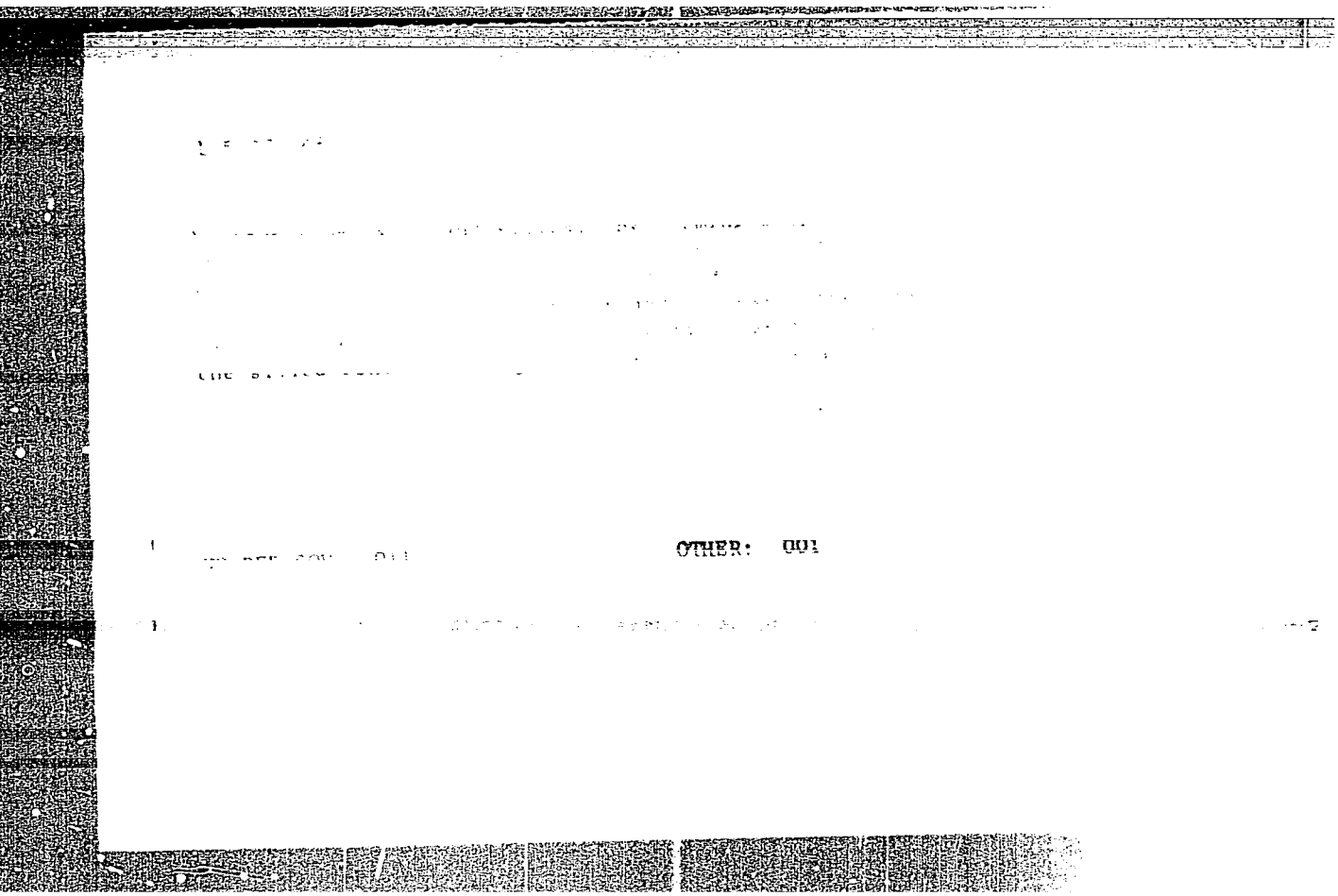

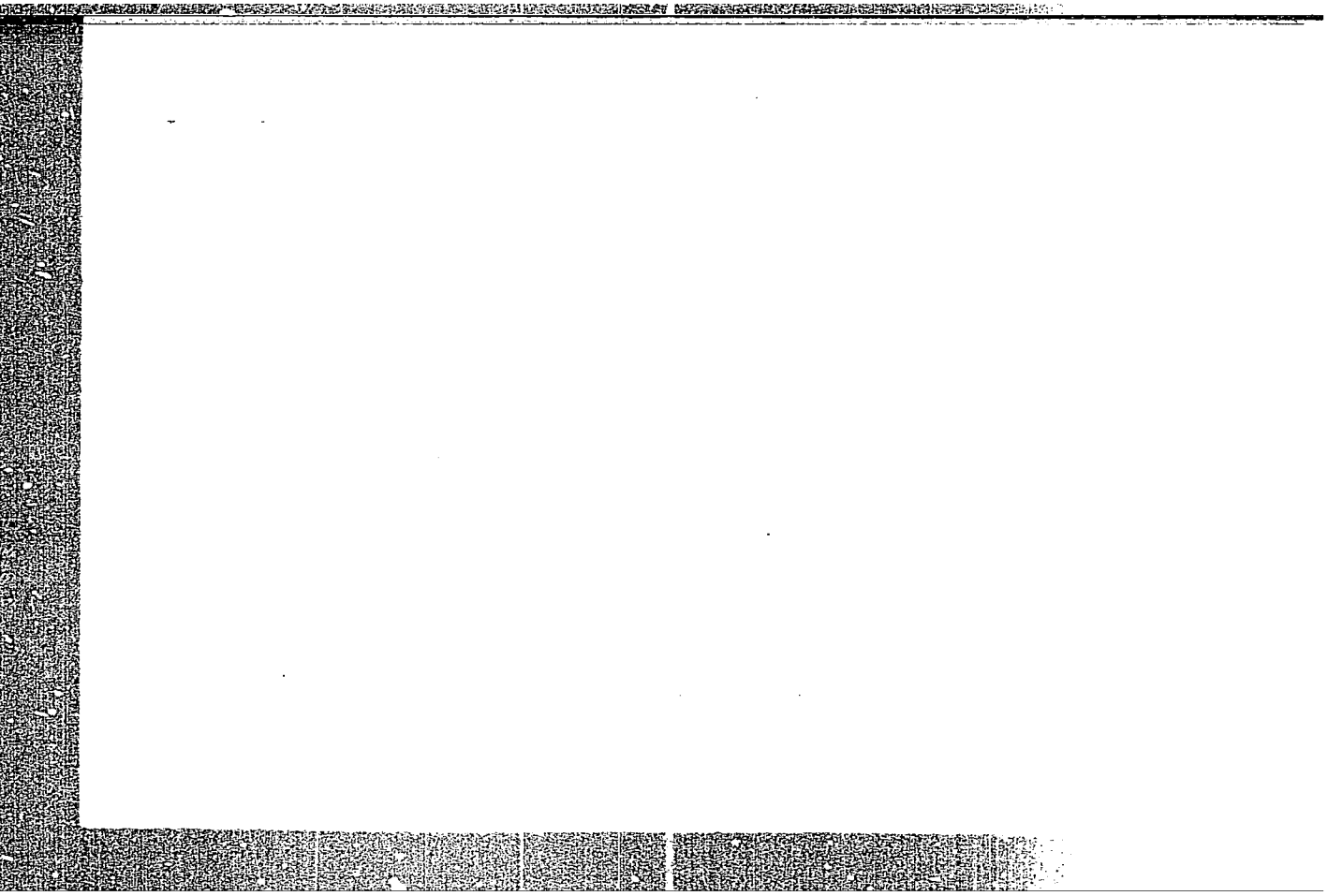

size of the corundum ceramic and provides for a uniform

KAYNARSKIY, I.S.; ORLOVA, I.G.; DEGTYAREVA, E.V.

Deformation and shrinkage of corundum during sintering. Porosh. met. 5 no.5:82-86 My '65. (MIRA 18:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

ORLOVA, I.G.; KAYNARSKIY, I.S.; MIRKINA, R.Ye.

Effect of additives on the deformation of a corundum adobe brick during its firing. Ogneupory 30 no.1:28-37 '65.

(MIRA 18:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S.; GAODU, A.N.; KARYAKIN, L.I.; USATIKOV, I.F.

Technology of corundum refractories. Ogneupory 30 no.2:37-41 '65.
(MIRA 18:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogenuporov.

KAYNARSKIY, I.S.; GAODU, A.N.; USATIKOV, I.F.

Semi-lightweight corundum refractory. Ogneupory 30 no.5:38-40 '65.
(MIRA 18:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; PINDRIK, B.Ye.; SAKOVSKIY, D.Ya.

Use of alumina - carborundum refractories in coke ovens. Ogneupory 30 no.7:35-37 '65. (MIRA 18:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for Kaynarskiy, Degtyareva, Pindrik). 2. Gosudarstvennaya inspektsiya po sluzhbe i kachestvu ogneuporov (for Sakovskiy).

KAYNARSKIY, I.S.; ORLOVA, I.G.; PROKOPENKO, M.I.

Connection between losses during the calcining of alumina and the strength of raw brick during heating. Ogneupory 30 no.10:37-39 '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; ORLOVA, I.G.; KARAULOV, A.G.; GNATYUK, G.Ye.

Effect of additions of γ-Al_2O_3 on the properties of alumina slip, the baking, hardening in the firing process, and the properties of corundum products. Ogneupory 30 no.11:27-32 '65. (MIRA 18:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S.; ORLOVA, I.G.; PROKOPENKO, M.I.; NATSENKO, A.I.

Hardening of a raw corundum brick during firing. Ogneupory 30 no.12:28-33 '65. (MIRA 18:12)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

KAYNARSKIY, I.S., prof.

New data on silica and its use in modern technology.
Zhur.VKHO 10 no.5:519-525 '65. (MIRA 18:11)

ORLOVA, I.G.; KAYNARSKIY, I.S.; PROKOPENKO, M.I.

Effect of modifying additions on the strength of corundum ceramics. Izv. AN SSSR. Neorg. mat. 1 no.5:804-809 My '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; ALEKSEYENKO, L.S.

Effect of modifying additions on the dielectric properties of corundum ceramics. Izv. AN SSSR. Neorg. mat. 1 no.5:810-815 My '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

DEGTYAREVA, E.V.; KAYNARSKIY, I.S.; KARYAKIN, L.I.; ALEKSEYENKO, L.S.

Dielectric properties of corundum ceramics and its microstructure. Izv. AN SSSR. Neorg. mat. 1 no.5:816-822 My '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

L 12037-66 EWP(e)/EWT(m)/T/EWP(b) MH

ACC NR: AP5024199 SOURCE CODE: UR/0131/65/000/009/0032/0035

AUTHOR: Kaynarskiy, I. S.; Gaodu, A. N.

ORG: Ukrainian Scientific-Research Institute for Refractory Materials (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Light-weight corundum containing 99% Al_2O_3

SOURCE: Ogneupory, no. 9, 1965, 32-35

TOPIC TAGS: corundum, ~~industrial production~~, porosity, heat conductivity, corundum refractory, ~~product~~, metal extracting, heat resistant material

ABSTRACT: A new method for the production of high-Al_2O_3 corundum was developed which was more efficient and economical than the method now in practice (elimination of pretreatment of technical alumina and that of the slip). The slip was prepared by mixing non-roasted non-ground technical alumina, dolomite, gypsum and small additions of petroleum coke (5%), followed by pouring in of orthophosphoric acid mixed with the powders for the formation of slip. (Abstracter's note: except for coke, the exact quantity of the components is not given, nor is other informa-

1/2 UDC: 666.889

L 12037-66

ACC NR: AP5024199

tion, e.g. the duration of roasting, etc.) The swelling, after pouring into molds, was affected by the liberation of CO_2 during the reaction of orthophosphoric acid wi with dolomite and gypsum; the hardening of the gypsum fixed the structure of the cast. The unfinished product was roasted at 1560-1580C. The roasted product, containing Al_2O_3 88-92, $3CaO.P_2O_5$ 6-8, $Al_2O_3.P_2O_5$, and glassy substance 1-2%, was worked into the desired form. A 2-4 hr. treatment with a HCl solution (1:1) resulted in the formation of a porous, wall-shaped product, containing SiO_2 0.78, Al_2O_3 99.02, Fe_2O_3 0.18, CaO 0.10 and R_2O 0.14%, which lost on ignition 0.12%. It was found possible to obtain a pure lightweight corundum (99% Al_2O_3) with a porosity of 76.6%, a bulk density of 0.85 g/cc, a heat conductivity of 0.40-0.45 kcal/m-hr-deg C, and a refractoriness of 2000C. It could be used at temperatures up to 1750C. Orig. art. has: 1 figure and 4 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG. REF: 002/

2/2

L 15400-66 EWP(e)/EWT(m)/EWP(b) WH
ACC NR: AP5027227 SOURCE CODE: UR/0020/65/164/006/1283/1285

AUTHOR: Kaynarskiy, I. S.; Orlova, I. G.; Degtyareva, E. V.

ORG: Ukrainian Scientific-Research Institute of Refractory Materials (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: The interdependence between shrinkage and deformation during the sintering of corundum

SOURCE: AN SSSR. Doklady, v. 164, no. 6, 1965, 1283-1285

TOPIC TAGS: corundum refractory, sintering, material deformation

ABSTRACT: The sintering of metal powders proceeds by means of diffusion creep or "viscous" flow caused by the action of capillary forces across the surfaces of the internal pores of the material. The present investigation established that shrinkage and deformation (due to gravitational pull) during the sintering of corundum samples proceed according to a pattern which confirms the diffusion mechanism of these processes. Basic results are summarized in Figures 1 through 4 of the article.

 UDC: 536.421.5+539.37:666.76

L 15400-66
ACC NR: AP5027237

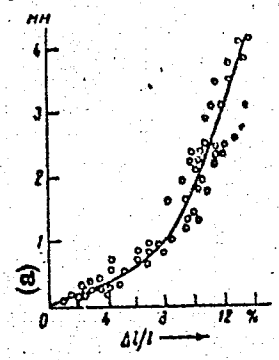

Fig. 1 Linear shrinkage versus deformation of corundum samples during isothermal sintering for 6 hr at 1200 — 1500C. a - deformation, mm.

Card 2/5

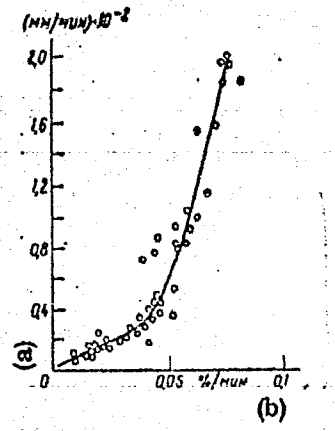

Fig. 2 Initial shrinkage rate versus the deformation of corundum samples during isothermal sintering at 1200 — 1500C. a - initial deformation rate; b - initial shrinkage rate.

ACC NR: AP5027227

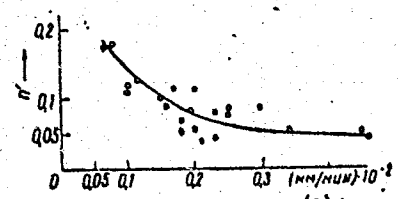

Fig. 3 Shrinkage rate versus a constant deformation rate during the second phase of isothermal heating at 1500C. a - constant deformation rate, (mm/min). 10^{-2}

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220014-2"

L 15400-66
ACC NR: AP5027227

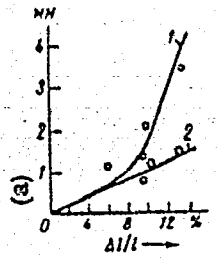

Fig. 4 Shrinkage versus deformation during isothermal sintering of corundum nonequilibrated samples (1) and those brought closer to equilibrium by preliminary annealing (2). a - deformation

The paper was presented by Academician N. V. Belov, 27 Feb 65. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11 / SUBM DATE: 25Feb64 / ORIG REF: 004 / OTH REF: 001

Card 5/5

L 22616-66 EWP(e)/EWT(m)/T/EWP(t)/EWP(k) JD/WH
ACC NR: AP6008690 SOURCE CODE: UR/0131/65/000/011/0027/0032

AUTHOR: Kaynarskiy, I. S.; Degtyareva, E. V.; Orlova, I. G.; Karaulov, A. G.; Gnatyuk, G. Ye.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: The effect of gamma-Al_2O_3 admixture on the properties of alumina slips, sintering, hardening in annealing, and properties of corundum products

SOURCE: Ogneupory, no. 11, 1965, 27-32

TOPIC TAGS: alumina, corundum, aluminum oxide, corundum ceramic

ABSTRACT: The effect of γ-Al_2O_3 on various properties of slips, on the behavior of castings during annealing, and on the properties of sintered products was studied. The introduction of γ-Al_2O_3 increases the zeta-potential. Recrystallization of active γ-Al_2O_3 at low temperatures followed by conversion of γ-Al_2O_3 to α-Al_2O_3 causes a substantial increase in the strength of the castings in the heated state in the 600-1300°C range as compared to strength of castings without γ-Al_2O_3. The latter decreases the size of corundum crystals in the sintered body, and this raises the strength of corundum ceramics to which MgO had not been added. Shrinkage in castings containing γ-Al_2O_3 becomes more pronounced during annealing and an anisotropy of shrinkage is ob-

UDC: 666.76.022.38

Card 1/2

L 22646-66
ACC NR: AP6008690

served. Addition of γ-Al_2O_3 slows down the sintering at about 1500°C; at higher temperatures, the degree of sintering of the castings is only slightly less. Introduction of γ-Al_2O_3 reduces the distortion of alumina castings up to 1450-1470°C but increases it at higher temperatures. The main advantage of γ-Al_2O_3 is that no binder (such as sucrose, flour, etc.) is needed in the slip, and a considerable strengthening of the heated raw material is obtained. It is desirable to use the γ-Al_2O_3 admixture together with MgO; the latter causes a substantial reduction of open porosity and an increase in the strength of the ceramic. Orig. art. has: 14 figures, 2 tables.

SUB CODE: 11/ SUBM DATE: CO/ ORIG REF: 008/ OTH REF: 000

Card 2/2 HW

L 23808-66 EWP(e)/EWT(m) WH

ACC NR: AP6007246 SOURCE CODE: UR/0363/66/002/002/0239/0244

AUTHOR: Degtyareva, E.V.; Kaynarskiy, I.S.

ORG: Ukrainian Scientific Research Institute for Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneporov)

TITLE: Kinetics of corundum sintering under pressure

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 2, 1966, 239-244

TOPIC TAGS: corundum, sintered aluminum powder, ~~chemical kinetics~~ sintering

ABSTRACT: A study was made of the kinetics of shrinkage in the sintering of corundum under pressure, with modifying additives and with the addition of 0.2 weight % of magnesium oxide. The corundum was prepared by calcining alumina at 1550°C for 6 hours. The material was ground to a size of about 3 microns, washed with hydrochloric acid, and then by decantation six times with distilled water. The aluminum oxide content in the initial corundum was from 99.75 to 99.85 weight %. The shrinkage was measured with a dilatometer with a reading accuracy of 5 microns. The temperature was measured with platinum-platinum rhodium thermocouples. It was found that the application of pressure increases the shrinkage of the corundum samples in sintering, independent of the presence of a

UDC: 553.65:536.421.5

Card 1/2

L 23808-66

ACC NR: AP6007246

modifying additive. Results are exhibited graphically. An increase in the applied pressure, without changing the shrinkage proportionally, sharply increases the sintering rate. As a function of the applied pressure, the coefficient expressing the shrinking rate in the initial period of isothermal sintering has an exponential character with respect to a non-equilibrium system. Preliminary calcining of the samples, carried out with gradual heating, changes the dependence of the shrinkage coefficient on the applied pressure. A decrease in the heating rate of the corundum samples to the temperature of their isothermal sintering, bringing the system tc an equilibrium state, aids in lowering the rate of isothermal shrinkage. Orig. art. has: 6 figures.

SUB CODE: 11,13/ SUBM DATE: 10Jul65/ ORIG REF: 022/ OTH REF: 002

Card 2/2

L 36872-66 EWP(e)/EWI(m)/EWP(t)/ETI IJP(c) JD/WH

ACC NR: AP6019872 (A) SOURCE CODE: UR/0131/66/000/002/0045/0051

AUTHOR: Kaynarskiy, I. S., Degtyareva, E. V.; Orlova, I. G.; Karaulov, A. G.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Effect of the method of vibratory milling of alumina on the properties of slips, sintering and hardening of castings during firing, and properties of corundum articles

SOURCE: Ogneupory, no. 2, 1966, 45-51

TOPIC TAGS: alumina, corundum, sintering

ABSTRACT: The study involved technical-grade alumina G-00 prefired at 1550, 1650, and 1750°C, then ground in a vibratory mill with steel balls for 2-10 hr by the dry and wet methods until about 80% of the grains were less than 3μ in size. The milling lasted from 2 to 10 hr. The use of the wet method of vibratory milling for the preparation of corundum ceramics was found to increase the zeta potential, viscosity, and kinetic stability of the slip. The strength of dried castings obtained by the wet method is much higher than that of castings obtained by the dry method. Wet vibratory milling causes a substantial hydration of the grain surface, and subsequent dehydration during heating causes a decrease in the strength of the heated casting; this decrease is much greater than that of a dry-milled casting. Wet-milled castings

Card 1/2 UDC: 666.76:553.65

L 36872-66
ACC NR: AP6019872

undergo a substantially greater shrinkage and deformation under their own weight than do dry-milled ones. The anisotropy of shrinking of the latter is much lower. The use of dry vibratory milling insures the formation of a sintered body of higher density and a smaller size of corundum crystals. The mechanical and dielectric properties of corundum ceramics are much higher in articles prepared by dry vibratory milling as compared to wet-milled articles. Orig. art. has: 8 figures and 6 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 018/ OTH REF: 002

Card 2/2 mlp

ACC NR: AP6032295 (A) SOURCE CODE: UR/0226/66/000/009/0028/0036 33 B

AUTHOR: Kaynarskiy, I. S.; Prokopenko, M. I.; Orlova, I. G.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Investigation of compaction in hot pressing of magnesium oxide with additions

SOURCE: Poroshkovaya metallurgiya, no. 9, 1966, 28-36

TOPIC TAGS: magnesium oxide, porosity, high temperature effect, compaction, pressing, not pressing

ABSTRACT: The authors have investigated the compaction of two types of magnesium oxide in the presence of some additives in hot pressing of samples at temperatures between 1400 and 1900C. It is shown that the compaction kinetics and the kinetics of growth of the poreless "crust" in periclase crystals are proportional to $t^{\frac{1}{3}}$ during the last stages of pressing when any intergranular porosity is eliminated. The diffusion mechanism of compaction during the last stage of hot

Card 1/2

L 07910-67

ACC NR: AP6032205

pressing of magnesium oxide was demonstrated. Orig. art. has: 7 figures and 2 tables. [Based on authors' abstract]

SUB CODE: 11/ SUBM DATE: 07Feb66/ ORIG REF: 014/ OTH REF: 009/

Card 2/2 vmb

L 07418-67 EWP(e)/EWT(m) WH
ACC NR: AP6030778 (A) SOURCE CODE: UR/0363/66/002/009/1664/1670

AUTHOR: Kaynarskiy, I. S.; Totsenko, S. B.; Legtyareva, E. V.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Effect of heat treatment conditions on the mechanical and dielectric properties of highly refractory spinel-corundum ceramics

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 9, 1966, 1664-1670

TOPIC TAGS: corundum, ceramic, refractory, dielectric breakdown, bending strength, CORUNDUM REFRACTORY

ABSTRACT: The effect of heat treatment on the breakdown voltage E_{br} and bending strength σ_{bend} of spinel-corundum specimens of various compositions was studied on specimens containing 30 and 70 wt. % Al_2O_3 and 70 and 30 wt. % spinel respectively. After firing, the specimens with 30% Al_2O_3 consist of a single-phase system in which Al_2O_3 has completely penetrated into the solid solution with spinel, whereas specimens with 70% Al_2O_3 consist of a two-phase system in which Al_2O_3 has partially penetrated into the solid solution and is chiefly present as corundum. Quenching from 1400-1600° of the two-phase specimens increases the Al_2O_3 content in the solid solution in spinel, thus increasing σ_{bend}. Considerable decomposition of the solid solution after quenching from 1750°C and also a rapid simultaneous growth of the crystals decrease σ_{bend}. The crystal growth lowers E_{br}, while quenching raises it. Quenching apparent-

Card 1/2 UDC: 666.76:620.17+666.76:54

L 07418-67

ACC NR: AP6030778

ly increases the microheterogeneity of the crystals of the solid solution, thus raising their microhardness. Decomposition of the solid solutions lowers the microhardness of the crystals. By decreasing the heterogeneity of the crystals, prolonged homogenizing lowers their microhardness. In single-phase specimens containing 30% Al_2O_3, an increase in microhardness and σ_{bend} is observed with an increase in the temperature from which the quenching is performed. E_{br} of these specimens substantially depends on the crystal size, diminishing as the latter increases. Orig. art. has: 9 figures and 3 tables.

SUB CODE: 11/ SUBM DATE: 14Jan66/ ORIG REF: 013/ OTH REF: 008

Card 2/2 pla

L 07411-67 EWP(e)/EWT(m) WH

ACC NR: AP6030779 (A) SOURCE CODE: UR/0363/66/002/009/1671/1677

AUTHOR: Totsenko, S. B.; Kaynarskiy, I. S.; Degtyareva, E. V.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Properties of sintered spinel and spinel-corundum refractories

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 9, 1966, 1671-1677

TOPIC TAGS: refractory, ceramic product property, dielectric breakdown, corundum
REFRACTORY, SINTERING, ELECTRIC RESISTANCE

ABSTRACT: The effect of the temperature of synthesis of magnesia spinel on the sintering of spinel and spinel-corundum specimens during firing and on the properties of the sintered body was studied. A lowering of the temperature of synthesis of the spinel causes the formation of products of higher density, which increases their breakdown voltage. Introduction of corundum into spinel considerably decreases the breakdown voltage of the articles, but increases their electrical resistance, cold and hot strength, and the modulus of normal elasticity. The strength and modulus of normal elasticity of spinel and spinel-corundum articles are largely determined by the size of the crystals of the ceramic body, and are related to it by the equations $\sigma_{bend} = 1250 \times d^{-0.20}$, $E = 1.3 \times 10^6 d^{-0.23}$, where d is the crystal size. Introduction of up to 5% forsterite into the spinel or spinel-corundum ceramic causes a considerable increase in their breakdown voltage and compressive strength and a very slight

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UDC: 666.76

L 07411-65

ACC NR: AP6030779

decrease of refractoriness. A larger admixture of forsterite increases the breakdown voltage somewhat, but decreases the strength of the ceramic body. The addition of 5% forsterite markedly improves the thermal stability of the specimens. Orig. art. has: 14 figures.

SUB CODE: 11/ SUBM DATE: 25Oct65/ ORIG REF: 015/ OTH REF: 003

Card 2/2 pla

ACC NR: AP6033371 (A) SOURCE CODE: UR/0131/66/000/008/0047/0056

AUTHOR: Degtyareva, E. V.; Kaynarskiy, I. S.; Totsenko, S. B.

ORG: Ukrainian Scientific Research Institute of Refractory Materials (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Studying sintering and recrystallization of magnesian spinel and its alumina mixtures

SOURCE: Ogneupory, no. 8, 1966, 47-56

TOPIC TAGS: sintering, recrystallization, magnesium compound, aluminum compound, porosity

ABSTRACT: The authors study sintering of magnesian spinel synthesized at various temperatures, as well as spinel-corundum and spinel-γ-Al_2O_3. Both α- and γ-alumina and spinel roasted at 1200 and 1750°C are used for studying sintering of materials with various activity, where this activity determines solid phase interaction rate and degree of sintering. All of these materials were modified in various ways for the study. The results of the study show that sintering of spinel which was synthesized at 1750°C begins at 1200°C and proceeds uniformly at higher temperatures. The sintering of spinel synthesized at 1200°C begins at 1500°C but takes place on a more intensive scale at higher temperatures than spinel synthesized at 1750°C. Spinel sinter-

Card 1/2 UDC: 666.76.001.5

ACC NR AP6033371

ing kinetics are proportional to $\sqrt{t}$ with respect to elimination of open porosity and to $\sqrt[3]{t}$ with respect to the elimination of closed porosity without regard to preliminary sintering temperature or specimen forming method. The addition of 3% alumina to spinel improves spinel sintering independently of the activity of the original material. This is explained by the formation of excess vacancies and the process is likened to the addition of spinel to alumina which also results in improved alumina sintering. A sharp increase in impurities has adverse effects on sintering. Sintering is at its minimum in mixtures composed of 70% spinel and 30% alumina. Variation in the degree of mixture sintering, where the mixture contains more than 30% alumina, is proportional to the molecular content of the free alumina in the mixture regardless of the activity of the original components. Spinel-alumina mixture sintering is considerably dependent on the activity of the original components and formation of raw materials. Low temperature spinel synthesis and pressing decreases the degree of sintering of spinel-alumina mixtures. Magnesian spinel crystals grow rapidly when the open porosity of the specimens is less than 5-6%. Increasing the rate of spinel crystal growing improves their closed porosity. The growth of spinel crystals can be significantly increased by adding 30% corundum. On the other hand, when corundum content is above 30% in the mixture, the system becomes two-phased and the growth of spinel crystals is retarded. Orig. art. has: 12 figures, 6 tables.

SUB CODE: 11, 20/ SUBM DATE: None/ ORIG. REF: 032/ OTH REF: 008

Card 2/2

ACC NR: AP7005513 (A) SOURCE CODE: UR/0131/66/000/011/0038/0046

AUTHOR: Orlova, I. G.; Kaynarskiy, I. S.; Mirkina, R. Ye.

ORG: Ukrainian Scientific Research Institute of Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov)

TITLE: Investigation of deformation during the sintering of finely ground magnesian spinel and its mixture with alumina

SOURCE: Ogneupory, no. 11, 1966, 38-46

TOPIC TAGS: magnesian spinel, refractory product, magnesium oxide, alumina, material deformation, sintering

ABSTRACT: The sintering of finely ground mixtures of magnesium oxide and alumina leads to the synthesis of magnesian spinel and, if there is an excess of alumina in the mixture, to the formation of solid solutions of alumina in the spinel and is always accompanied by some deformation due to natural gravity, particularly when sintering large specimens. The deformation of spinel under isothermal conditions is, like the shrinkage and deformation of corundum during sintering, proportional to $\sqrt{t}$, where t is the duration of isothermal exposure.

UDC: 666.76.001.5

Card 1/3

ACC NR: AP7005513

The kinetics of deformation at up to 1500°C is investigated for specimens of mixtures of fine-grained magnesian spinels with α-Al_2O_3 and γ-Al_2O_3 with the spinel-to-alumina ratios 3:7, 1:1, 7:3, synthesized at various temperatures (1200-1750°C), and it is established that the deformation of mixtures of spinel and α-Al_2O_3 is low and generally follows a consistent pattern similar to that of the deformation of specimens of 100% spinel. In specimens of mixtures of spinel and γ-Al_2O_3 the concentration dependence of the deformation has a minimum when the γ-Al_2O_3 content is 30%. In these mixtures the concentration of solid solutions is identical (31-35 mol.%) and close to its limit at 1500°C. For the specimens of spinel with α-Al_2O_3 that had been synthesized at 1750°C it is established that the addition of 1% alumina somewhat enhances deformation, but as the alumina content is further increased the deformation decreases until it resembles the deformation of specimens of 100% corundum; in this system free corundum occurs only if more than 30 wt.% of γ-Al_2O_3 is added to the original mass, as otherwise the alumina completely enters the solid solution -- and in this region deformation decreases in inverse proportion to the increase in the concentration of solid solutions. Thus, sintering of finegrained spinel ceramics is accompanied by extensive diffusion deformation, which normally exceeds the deformation of corundum ceramics. The addition of corundum to spinels with high deformation makes it possible to markedly reduce the extent of this deformation,

Card 2/3

ACC NR: AP7005513

owing to the formation of solid solutions of corundum in the spinel, particularly when the structure of the added corundum is macrograined. Orig. art. has: 11 figures, 3 tables.

SUB CODE: 11, 20 / SUBM DATE: none/ ORIG REF: 009/ OTH REF: 002

Card 3/3

KAYNER, G.B., inzh.

Errors in measuring with indicating inside calipers. Mashinostroitel' no.10:24-25 O '59. (MIRA 13:2)
(Calipers)

KAYNER, G.B.

Investigating errors in measuring with dial inside calipers. Izm.tekh. no.4:9-11 Ap '60. (MIRA 13:8)

(Calipers--Testing)

KAYNER, G.B.,

Dial indicators. Standartizatsiia 25 no.8:50 Ag '61. (MIRA 14:7)

(Measuring instruments--Standards)

KAYNER, G.B.

Errors of instruments at various initial registration points. Izm. tekh. no.2:5-7 F '62. (MIRA 15:2)
(Measuring instruments)

S/115/62/000/003/002/0.0
E194/E484

AUTHORS: Kayner, G.B., Markov, N.N., Eydinov, V.Ya.

TITLE: New instruments for linear measurements

PERIODICAL: Izmeritel'naya tekhnika, no.3, 1962, 6-8

TEXT: This article gives brief details of a number of new measuring instruments. The Leningradskiy instrumental'nyy zavod (Leningrad Instrument Works) has developed a group of spring-optical heads with scales of from 0.1 to 5 microns per division with ranges of ± 12 and ± 150 microns respectively. In these instruments a light is projected on to a mirror mounted on a bronze strip spring which reflects the beam on to a scale. Two colour filters are placed between the mirror and scale and their position is adjusted so that the light is coloured red or green if the part inspected is out of tolerance. The drive from the measuring head to the spring is frictionless so that the sensitivity is high; however, the instrument is sensitive to vibration and position. The same works has developed small spring type heads with scales of 1 and 2 microns per division and ranges of ± 50 and ± 100 microns. These use a spring mechanism in which

New instruments for linear ...

displacement of the measuring probe is not applied directly to stretch the spring, but releases it so that it can travel by tension of the suspension, as a result of this, chance knocks on the measuring rod are not transmitted to the spring mechanism. This head is not sensitive to position. Clock type micrometers are commonly used for scales of 0.01 mm per division but often the necessary travel is small and this sensitivity is not high enough. Accordingly, the "Krasnyy instrumental'shchik" Works has developed a special head 2IP3 (2GRZ) with a scale of 0.01 mm per division and a range of ± 0.25 mm. The head is not only more accurate than the usual head but is of improved construction. The rotating parts are mounted on jewels. However, the factory standard error of ± 5 microns is too high and they are rather expensive. The works has used this head in an instrument with electrical contacts that indicate when the limits are reached and brief details are given. The same works has recently modernized the former clock type micrometer using a rack and lever system. A number of constructional improvements are briefly described. The Chelyabinskiy instrumental'nyy zavod (Chelyabinsk Instrument

S/115/62/000/003/002/010
E194/E484

New instruments for linear ...

Works) has developed instruments for inspecting gear teeth for waviness, which are briefly described. They can reveal surface irregularities of 1 micron. The "Kalibr" Works has redesigned its former rather unsatisfactory internal gauges. Motion is transmitted from the measuring head to the driving rod by a wedge and ball mechanism which turns the motion through a right angle. The measuring heads can be provided with scales of 0.002 mm per division with a range of ± 0.1 mm, they can be used with many types of clock type gauge. The measuring probes are tipped with hard alloy. The error of the new internal gauges does not exceed 5 microns over the whole range of measurement of the head within the range of 0.02 mm the error does not exceed 2 microns. There are 5 figures.

Card 3/3

KAYNER, G.B.

New method for centering inside calipers. Izm.tekh. no.5:12-13 My '63. (MIRA 16:10)

MARKOV, N.N.; KAYNER, G.B.; SATSERDOTOV, P.A.

Effect of temperature on the errors of measurements. Izm.tekh. no.11:5-9 N '63. (MIRA 16:12)

KAYNER, G.B.

Indicating inside calipers. Standartizatsiia 27 no.5:53-54 My '63. (MIRA 16:6)
(Calipers)

ACCESSION NR: AP4034525 S/0028/64/000/003/0021/0023

AUTHOR: Markov, N. N.; Kayner, G. B.

TITLE: Measurement error standardization for active control and pickup devices

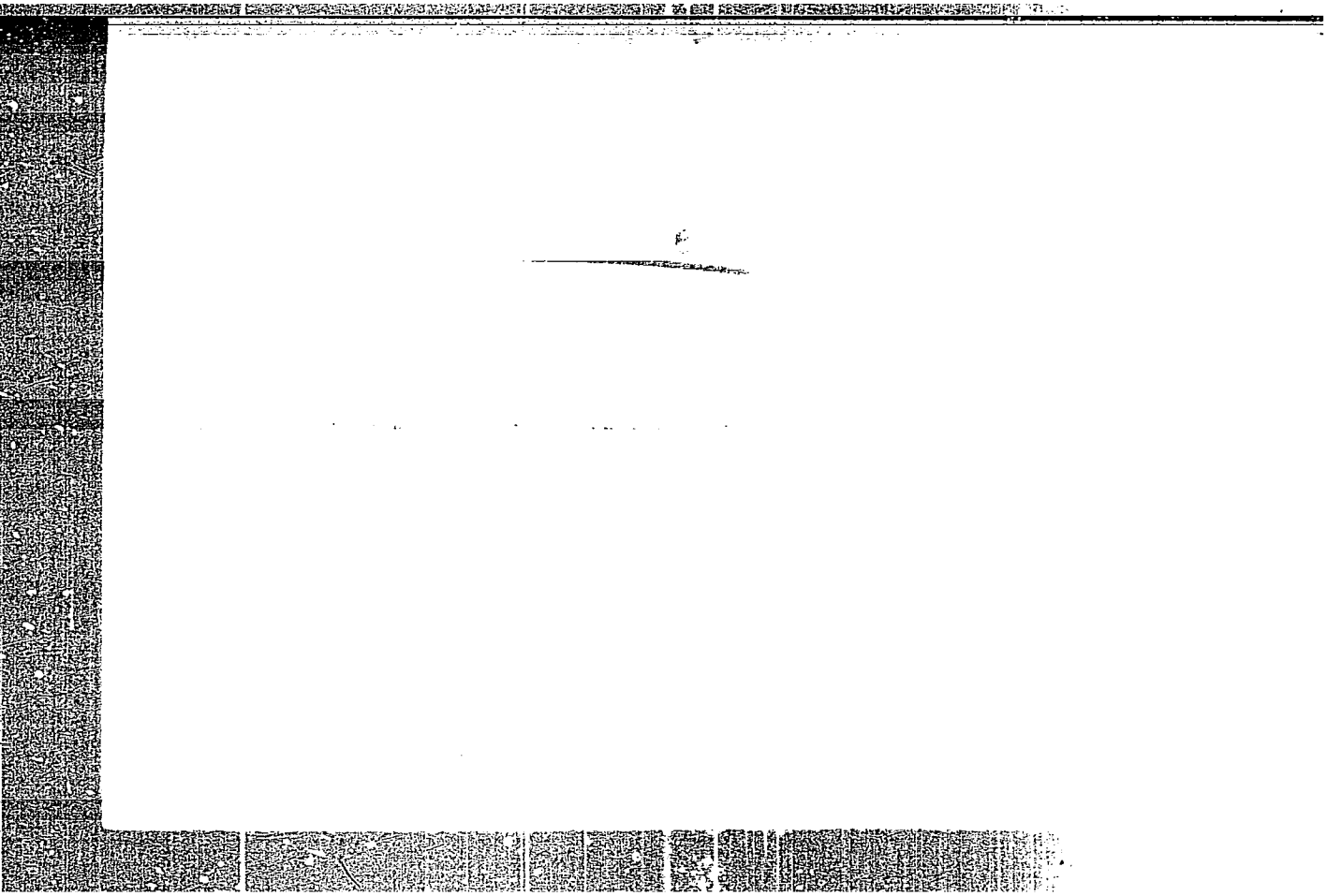
SOURCE: Standartizatsiya, no. 3, 1964, 21-23

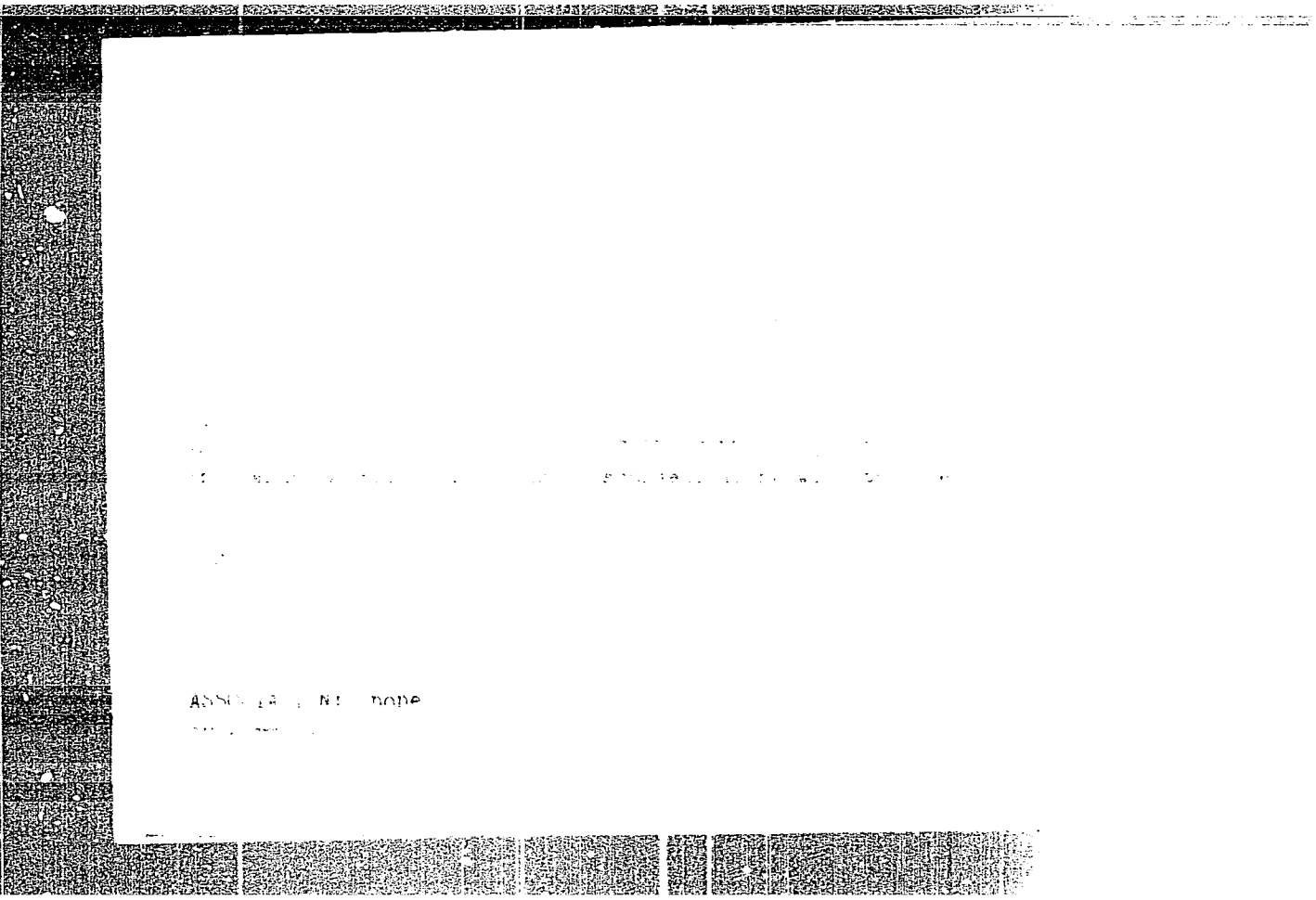
TOPIC TAGS: automatic measurement device, active control device, measurement error, measurement error standardization, clinometer, testing method

ABSTRACT: Lack of adequate measurement error standards for active control devices and other automatic measuring devices stems from the difficulty of separating device measurement error from machine error. Reliable measuring instruments are needed to establish measurement error standards and to develop effective testing methods. Clinometers and instruments of that type have proven to be the most reliable, ensuring measurement to 0.1 micron under static conditions. Special test stands to simulate machine operation without error are needed to separate device error from machine error. With improved testing

Card 1/2

Card 2/2





ASSIGNMENT: none

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220014-2"

KAYNER, G.B.

Investigating the contact methods of measuring internal part dimensions with stationary instruments. Izm. tekh. no.11:8-11 N '64. (MIRA 18:3)

S/128/63/000/003/004/005
A054/A126

AUTHOR: Kaynov, V.M.

TITLE: Automatic pouring of aluminum alloys in die casting

PERIODICAL: Liteynoye proizvodstvo, no. 3, 1963, 25 - 27

TEXT: The automatic pouring equipment for aluminum alloys operates on the principle of metal extrusion by immersion of an extruding element and hereby feeding the metal into the casting apparatus. The equipment consists essentially of a crucible and an extruder, activated electromechanically and pneumatically; the metal is proportioned by a disc-type variator, the intensity of the metal jet is controlled by the stroke of a pneumatic piston and the movement of the extruder by a bolt (the equipment is shown in a figure). The variator can be regulated over 3 mm, the pitch of the moving bolt is 6 mm. A 6-mm immersion of the extruder presses 2.5 kg metal into the pipe connecting the crucible with the casting apparatus. The data of the equipment are: crucible capacity 370 kg; metal content of the furnace 270 - 300 kg; the indicated amounts of liquid aluminum alloy fed by the proportioning device during one operation cycle:

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Automatic pouring of aluminum alloys in die casting

minimum 1.5, maximum 7 kg; maximum furnace capacity 50 kw; power consumption 20 kwh; air pressure in the pneumatic cylinder 3.5 atm; overall dimensions of the equipment (without heating tube) 2,500 x 2,100 x 4,200 mm. In view of the highly corrosive character of aluminum alloys, reliable operation of the equipment must be ensured by efficient protection of the extruder and the crucible against corrosion. For this purpose the extruder can be welded of steel [illegible] coated with a mixture of 5% zinc oxide, 2% water glass and water [illegible] surface at an extruder temperature of 100 - 230°C, 50 μ thick [illegible] ing cracks more easily). This kind of coating ensures a service life [illegible] Better results are expected if zinc oxide is replaced by zirconium oxide. To ensure a low heat-conductivity for the extruder, tests were made [illegible] from or lining it with heat resistant concrete which contains [illegible] 650 kg finely crushed magnesite, 19 - 22 kg sodium silico-fluoride and [illegible] kg water glass per m³. Extruders of one of the above compositions - with a [illegible] -mm gap between the crucible and the extruder - can operate in an AL 2 (AL2) alloy at 590°C. To prevent a reaction between the crucible and the alloy, the former must be coated with a mixture of 100 g zinc oxide, 60 g water glass, 30 g crushed kaolin clay in 1 l water. Equations and graphs were drawn up for the

Automatic pouring of aluminum alloys in die casting

S/128/63/000/003/004/005
A054/A126

time required for feeding a given amount of metal through the calibrated opening of a ДУ-3 (DU-3) type proportioning device and to determine the hydrostatic head of the metal and the time required for the metal level to rise from 0 height to H, and other elements of the process. There are 7 figures.

Card 3/3

DREYZENSHTOK, Zundel' Borisovich; OKERBLOM, N.O., prof., doktor tekhn. nauk, nauchnyy red.; KAYNOV, Yu.D., retsenzent; SAGALOVICH, D.N., retsenzent; OSVENSKAYA, A.A., red.; SHISHKOVA, L.M., tekhn. red.

[Organization of the welding industry] Organizatsiia svarochnogo proizvodstva. Nauchn. red. N.O.Okerblom. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1961. 94 p. (MIRA 14:12)
(Industrial organization) (Welding)

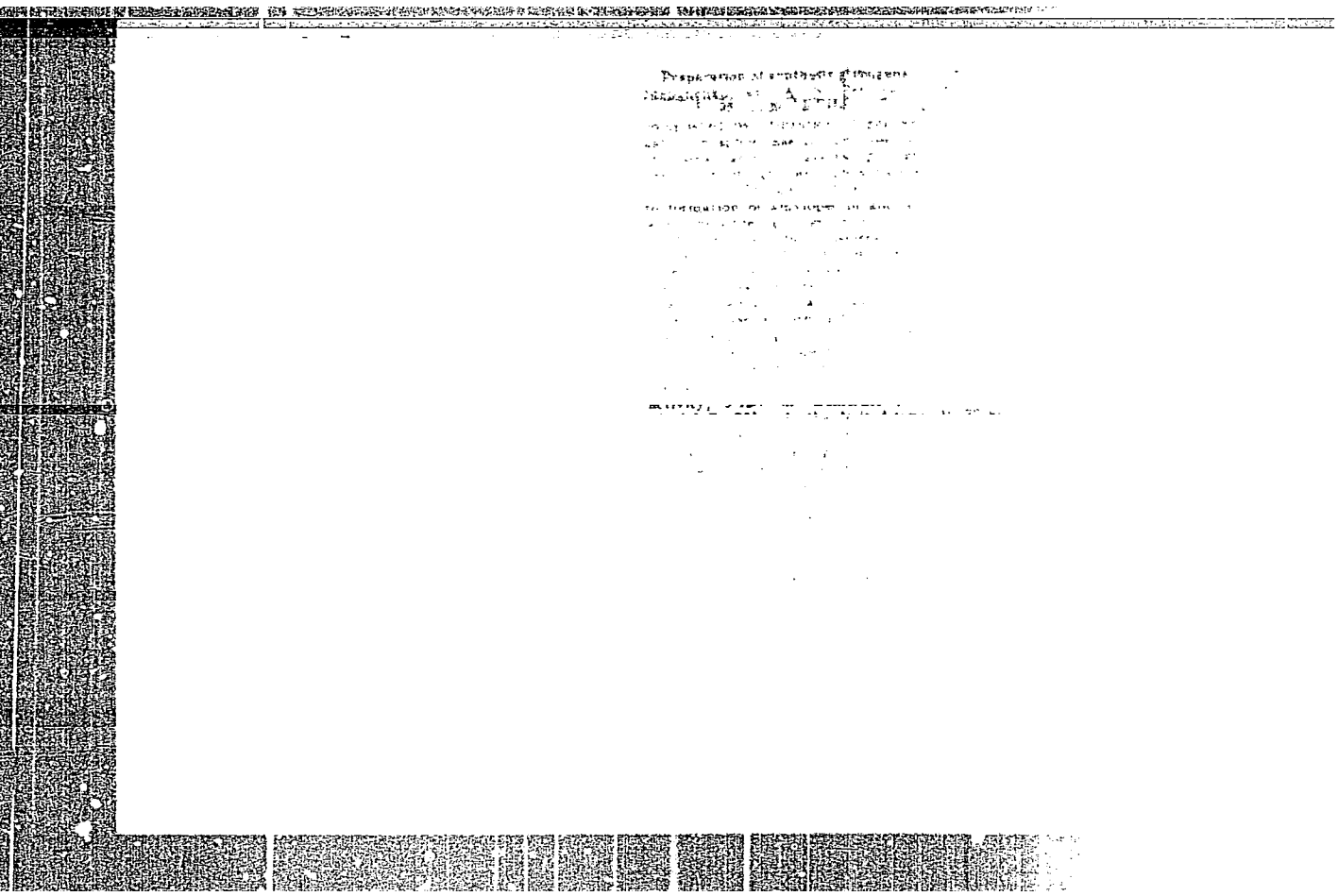
KAYNOV, Yu.D.

Meeting our readers. Avtom. svar. 17 no.8:94-95 Ag '64.
(MIRA 17:11)

KAYNOVA, A. S.

Dissertation: "Enzymatic Synthesis of Glycogens in Vitro and Study of tne Synthesis of Glycogens." Cand Biol Sci, Inst of Biochemistry, Acad Sci USSR, Moscow, 1953. Referativnyy Zhurnal--Khimiya, Moscow, No 8, Apr 54.

SO: SUM 284, 26 Nov 1954



KAYNOVA, A. S.

USSR/Biochemistry

Card 1/1

Authors : Stepanenko, B. N. and Kainova, A. S.

Title : Study of synthetic glycogens.

Periodical : Dokl. AN SSSR, 95, 6, 1263-1266, 21 Apr 1954

Abstract : Description of an experimental study of four synthetic glycogens is given in the article. The experiment was performed by the method of fermentation in vitro with the help of two muscular ferments (phosphorylase and "isomese" of amylase). Tables and diagrams.

Institution : ....

Submitted : 28 Jan 1954

KAYNOVA, A.S.

[illegible] synthesis [illegible] in vitro with the aid of [illegible] enzymes and a study of synthetic glycogens [illegible]

complexes with myosin, [illegible] sorption max. in the ultraviolet. The structures and lengths of chains in I are discussed.

W. C. Tobie

KAYNOVA, A.S.

Effect of ionizing radiation on phospholipid metabolism in the liver. Biokhimiia 25 no. 3:540-544 My-Je '60. (MIRA 14:4)
(PHOSPHATIDES) (LIVER)
(GAMMA RAYS—PHYSIOLOGICAL EFFECT)

DEMIN, N.N.; KAYNOVA, A.S.

Effect of acetylcholine on the renewal in vitro of phospholipids of the rat liver exposed to gamma radiation. Radiobiologiia 1 no.2:182-186 '61. (MIRA 14:7)

(GAMMA RAYS--PHYSIOLOGICAL EFFECT)
(CHOLINE) (PHOSPHATIDES)

PROTASOVA, T.N.; KAYNOVA, A.S.

Effect of adrenalectomy on phospholipid and amino acid metabolism in irradiated animals. Radiobiolgoiia 1 no.5:731-737 '61. (MIRA 14:11)

(ADRENAL GLANDS) (GAMMA RAYS--PHYSIOLOGICAL EFFECT) (METABOLISM)

KAYNOVA, A.S.; KUVAYEVA, I.B.

Phospholipids in intestinal secretions in dogs. Biul. eksp. biol. i med. 51 no.3:60-63 Mr '61. (MIRA 14:5)

1. Iz laboratorii AMN SSSR (zav. - prof. N.N.Demin) i laboratorii fiziologii pishchevareniya (zav. - prof. G.K.Shlygin) Instituta pitaniya AMN SSSR, Moskva. Predstavlena deystvitel'nym chlenom AMN SSSR S.Ye.Severinym.
(INTESTINES--SECRETIONS) (METABOLISM)

41725

S/241/62/000/003/003/004
I021/I215

27 2400

AUTHOR: Kaynova, A.S.

TITLE: Nitrogen metabolism in acute radiation sickness in dogs maintained on a milk-egg diet

PERIODICAL: Meditsinskaya Radiologiya, no. 3, 1962, 35-39

TEXT: It has been previously established that an optimal protein diet lowers the sensitivity of animals to irradiation. Experiments were carried out on 4 dogs weighing 16-18 kg. The animals were x-irradiated twice with 400r at a dose rate of 15r/min. The contents of urea, amino-acids and ammonia in the urine and blood were determined. The diet contained 71% of animal protein (20% meat, 36% of a milk product, 14% eggs). The diet

Card 1/2

S/241/62/000/003/003/004
I021/I215

Nitrogen metabolism ....

contained also optimal quantities of fat, carbohydrates and vitamins and was given in quantities of 4g/Kg b.w. per 24 hours. The control dogs were maintained on a regular diet. A positive nitrogen balance after irradiation was preserved only in dogs which received the milk-egg diet, in which no significant changes in the nitrogen metabolism was observed. The author concludes that such a diet plays a certain protective role in radiation sickness.

SUBMITTED: January 23, 1961

Card 2/2

Disorders of tyrosin metabolism in collagen diseases. Report No.1. Terap.arkh. no.7:58-65 J1 '62. (MIRA 15:8)

1. Iz kliniko-biokhimicheskoy laboratorii (zav. - prof. A.N. Kvyatkovskaya) Instituta revmatizma AMN SSSR (dir. - deystvitel'-nyy chlen AMN SSSR prof. A.I. Nesterov).
(COLLAGEN DISEASES) (TYROSIN IN THE BODY)